

```

12 144 100.0 29 13 AAR24524
13 144 100.0 29 15 AAR45436
14 144 100.0 29 15 AAR63248
15 144 100.0 29 16 AAR69075
16 144 100.0 29 17 AAR8964
17 144 100.0 29 19 AAM63181
18 144 100.0 29 19 AAM50904
19 144 100.0 29 20 AAY34197
20 144 100.0 29 20 AAY18038
21 144 100.0 29 21 AAB11890
22 144 100.0 29 21 AAY35279
23 144 100.0 29 21 AAY78951
24 144 100.0 29 22 AAE09259
25 144 100.0 29 22 AAG63274
26 144 100.0 30 15 AAR54535
27 144 100.0 30 15 AAR63247
28 144 100.0 30 16 AAR69063
29 144 100.0 30 16 AAR79809
30 144 100.0 30 16 AAR80548
31 144 100.0 30 17 AAR8956
32 144 100.0 30 17 AAR88975
33 144 100.0 30 17 AAR88978
34 144 100.0 30 18 AAM16383
35 144 100.0 30 19 AAM63288
36 144 100.0 30 19 AAM63182
37 144 100.0 30 19 AAM50906
38 144 100.0 30 20 AAY80307
39 144 100.0 30 20 AAY80308
40 144 100.0 30 20 AAY80316
41 144 100.0 30 20 AAY12935
42 144 100.0 30 20 AAY7374
43 144 100.0 30 20 AAY39773
44 144 100.0 30 20 AAY34198
45 144 100.0 30 20 AAY31503

ALIGNMENTS

RESULT 1
AAR45437
ID AAR45437 standard; protein: 28 AA.

AAR45437:
XX
AC 27-JUN-1994 (first entry)
XX
DT
XX
DE Insulinotropin derivative.
XX
KW Insulinotropic; activity; enhancing insulin activity; treatment:
XX
Type II diabetes.
XX
OS Synthetic.
XX
NN WC9325579-A.
XX
PD 23-DEC-1993
XX
PF 14-APR-1993; 93WC-USO3388.
XX
PR 15-JUN-1992; 92US-0899073.
XX
PA (PFIZ ) PFIZER INC.
XX
PI Andrews GC, Daumy GO, Francoeur ML, Larson ER;
XX
DR WPI; 1994-007457(01)
XX
PT New derivs. of glucagon-like peptide 1 and insulinotropin - used for
XX
enhancing insulin action in a mammal, partic. by iontophoretic admin.
XX
Citation 3; Page 20; 32pp; English.
XX

```

CC The sequence is that of a derivative of insulinotropin which
 CC has insulinotropic activity and is useful for enhancing insulin
 CC action in a mammal, partic. for treating Type II diabetes.
 CC (claimed). It is partic. suited for delivery to a mammal by
 CC ionophoresis.

XX Sequence 28 AA:

Query Match 100.0%; Score 144; DB 15; Length 28;
 Best Local Similarity 100.0%; Pred. No. 1.7e-14;
 Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAKKEFIAMLVK 28
 Db 1 haegftsdvssylegqaakefiawlvk 28

RESULT 2

AAR63249 standard; peptide: 28 AA.

XX AAR63249;

DT 02-MAY-1995 (first entry)

XX Insulinotropin (GLP-1(7-34)) for use in treating NIDDM.

XX Insulinotropic activity; GLP-1; glucagon-like protein 1; NIDDM;
 XX non-insulin dependent diabetes mellitus; insulinotropin; truncated.

OS Synthetic.

XX EP619322-A.

PN 12-OCT-1994.

XX 10-FEB-1994; 94EP-0300981.

PR 07-APR-1993; 93US-0044133.

XX (PF12) PRIZER INC.

PA (PF12) PRIZER CORP.

PI Danley DE, Gelfand RA, Geoghegan KF, Kilm Y, Lambert WJ;
 PI Ol H, Oih, Hong Q, Yesook K;

DR WPI; 1994-311774/39.

XX Treatment of non-insulin dependent diabetes mellitus - using a
 PT glucagon-like peptide I or deriv. with prolonged action for
 PT sustained glycaemic control

PS Claim 2; Page 46; 70pp; English.

XX This peptide is GLP-1(7-34) (GLP = glucagon-like peptide), a truncated
 CC deriv. of GLP-1 and its deriv.s are useful in the treatment of
 CC Non-Insulin Dependent Diabetes Mellitus (NIDDM). During processing in
 CC the pancreas and intestine, GLP-1 (AAR63245) is converted to a 31 amino
 CC acid peptide having amino acids 7-37 of GLP-1, alternatively referred
 CC to as insulinotropin. GLP-1(7-37) has insulinotropic activity, ie. it
 CC is able to stimulate, or cause to be stimulated, the synthesis of the
 CC hormone insulin. Other deriv.s of GLP-1 are shown in AAR63246-51. It
 CC has been discovered that prolonged plasma elevations of GLP-1, and
 CC related polypeptides, are necessary during the meal and beyond to
 CC achieve sustained glycaemic control in patients with NIDDM. The invention
 CC provides a compsn. that has prolonged action after each administration.

XX Sequence 28 AA:

Query Match 100.0%; Score 144; DB 15; Length 28;
 Best Local Similarity 100.0%; Pred. No. 1.7e-14;

Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAKKEFIAMLVK 28
 Db 1 haegftsdvssylegqaakefiawlvk 28

RESULT 3

AAW16669 standard; peptide: 28 AA.

XX AAW16669;

DT 22-JUL-1997 (first entry)

XX Tetradeconoylated glucagon like peptide 1 derivative.

XX Hormone; derivative; glucagon like peptide 1; modification;
 KW lipophilic substituent; tetradeconoyl; protracted; action;
 KM profile; GLP-1.

XX Synthetic.

XX Key Location/Qualifiers

FT Modified-site 28

FT /note="Lys[Nepsilion-gamma-Glu(Nalpha-tetradeconoyl)-
 -OH]-COOH"

XX NO629342-A1

XX 26-SEP-1996.

XX 18-MAR-1996; 96NO-DK00106.

XX 17-MAR-1995; 95DX-0000275.

XX (NOVO) NOVO-NORDISK AS.

PI Halstrom JB, Hansen PH, Havelund S, Jonassen I;
 PI Kutznaals P;

DR WPI; 1996-443133/44.

XX New peptide hormone deriv.s - having a lipophilic substit.
 PT introduced into the N-terminal or C-terminal for a protracted
 PT profile of action.

XX Disclosure; Page 5; 21pp; English.

XX The present sequence is a pharmacologically active peptide hormone
 CC (PH) derivative, where the parent PH, glucagon like peptide 1,
 CC has been modified by introducing a carboxy-terminal lipophilic
 CC substituent, specifically tetradeconoyl, giving it a protracted
 CC profile of action in the body compared to the parent PH.

XX Sequence 28 AA:

Query Match 100.0%; Score 144; DB 17; Length 28;
 Best Local Similarity 100.0%; Pred. No. 1.7e-14;
 Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAKKEFIAMLVK 28
 Db 1 haegftsdvssylegqaakefiawlvk 28

RESULT 4

AAW02644 standard; peptide: 28 AA.

XX AAW02644;

Handwritten note: HbS modification @ C-terminus

DT 24-JAN-1997 (first entry)
 XX
 PI Glucagon-like peptide-1 residues 7-34.
 DE
 XX
 XX
 KW GLP-1 (7-34): thixotropic; insulinotropic; diabetes; treatment;
 KM phenol; alcohol; aromatic; gel; protracted release.
 OS
 XX Synthetic.
 PN WO9620005-A1.
 XX
 PD 04-JUL-1996.
 XX
 XX
 PF 21-DEC-1995; 95WO-DK00516.
 XX
 PR 23-DEC-1994; 94DK-0001478.
 XX
 PA (NOVO) NOVO-NORDISK AS.
 XX
 PI Jensen E, Jorgensen KH;
 XX
 DR WPI: 1996-32164/32.
 XX
 XX
 PT New compns. contg. glucagon-like peptide-1 - comprising gels for
 PT the protracted release of GLP-1 in the treatment of diabetes
 PT mellitus.
 PS
 XX
 PS Disclosure: Page 3; 16pp; English.
 CC
 CC The present sequence is that of residues 7-34 of glucagon-like peptide-1
 CC (GLP-1 (7-34)). Compns. contg. a GLP-1 cpd. and a phenolic and/or an
 CC alcoholic aromatic cpd. result in a thixotropic gel showing a protracted
 CC release of the active GLP-1 cpd.. The compns. can be used as
 CC insulinotropic agents in the treatment of diabetes. In partic. GLP-1
 CC (7-37) is used in the examples of the invention (sequence not given).
 XX
 SQ Sequence 28 AA:
 Query Match 100.0%; Score 144; DB 17; Length 28;
 Best Local Similarity 100.0%; Pred. No. 1.7e-14;
 Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
 QY 1 HAEGFTSDVSSYLEGQAAKEFIAVLVK 28
 DB 1 haegtstsvssylegqaakefiaflvkv 28
 RESULT 5
 AAR98950
 ID AAR98950 standard; peptide; 28 AA.
 XX
 AC AAR98950;
 XX
 DT 15-JAN-1997 (first entry)
 XX
 DE Target peptide (GLP1(7-34)) used in fusion protein construct.
 XX
 KW Fusion protein construct; isolation; purification;
 KW growth hormone releasing factor; glucagon-like peptide 1,
 KW parathyroid hormone; inclusion body; carbonic anhydrase.
 OS
 XX Synthetic.
 PN WO9617942-A1.
 XX
 PD 13-JUN-1996.
 XX
 PF 07-DEC-1995; 95WO-US15800.
 XX
 PR 07-DEC-1994; 94US-0350530.
 XX
 PA (BION-) BIONEERASKA INC.

XX
 PI De LA MOTTE RS, Henriksen DB, Holmquist B, Manning SD;
 PI Partridge BE, Stout JS, Wagner FW;
 XX
 XX WPI: 1996-287186/29.
 DR
 XX
 PT Isolation and purification of peptide(s) from fusion protein constructs
 PT - which include a carbonic anhydrase and a variable fused
 PT polypeptide
 PS
 PS Claim 18; Page 47; 67pp; English.
 CC
 CC A new method for the isolation and/or purification of a recombinant
 CC peptide employs a fusion protein construct (FPC) comprising a
 CC carbonic anhydrase and a variable fused polypeptide containing a
 CC target peptide. The method comprises precipitating either the FPC or
 CC a fragment of the FPC including the carbonic anhydrase. An
 CC alternative method of producing the peptide comprises expressing the
 CC FPC as part of an inclusion body. The target peptides of the FPC are
 CC derived from growth hormone releasing factor (GRF), glucagon-like
 CC peptide 1 (GLP1) or parathyroid hormone (PTH). This sequence
 CC corresponds to amino acids 7-34 of GLP1.
 XX
 SQ Sequence 28 AA:
 Query Match 100.0%; Score 144; DB 17; Length 28;
 Best Local Similarity 100.0%; Pred. No. 1.7e-14;
 Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
 QY 1 HAEGFTSDVSSYLEGQAAKEFIAVLVK 28
 DB 1 haegtstsvssylegqaakefiaflvkv 28
 RESULT 6
 AAW93527
 ID AAW93527 standard; peptide; 28 AA.
 XX
 AC AAW93527;
 XX
 DT 15-JUN-1999 (first entry)
 XX
 DE Peptide used in treatment of diabetes mellitus and obesity.
 XX
 KW Diabetes mellitus; obesity; therapy; treatment; hormone; CAMP; CGMP;
 KW cyclic adenosine monophosphate; cyclic nucleotide degradation;
 KW anti-obesity; non-insulin-dependent; mature onset; pancreatic disease;
 KW secondary hyperglycemia; pancreatitis; pancreasectomy; pheochromocytoma;
 KW hemochromatosis; endocrine disease; Cushing's syndrome; iatrogenic;
 KW hyperthyreosis; benzothiadiazine saluretic; diazoxide; glucocorticoid;
 KW pathological glucose tolerance; hyperglycemia; dyslipoproteinemia;
 KW hyperlipoproteinemia; hypotension.
 OS
 XX Synthetic.
 PN WO9914239-A1.
 XX
 PD 25-MAR-1999.
 XX
 PF 11-SEP-1998; 98WO-EP05804.
 XX
 PR 11-MAR-1998; 98DE-1010515.
 PR 12-SEP-1997; 97DE-1040081.
 PR 23-DEC-1997; 97DE-1057739.
 XX
 PA (FORS/) FORSSMANN W G.
 XX
 PI Adermann K, Forssmann WG, Meyer M, Richter R;
 XX
 DR WPI: 1999-244026/20.

PT Composition containing stimulators of cyclic nucleotide
PT monophosphate
XX
PS Claim 30; Page 18; 38pp; German.
XX
XX This invention describes a composition containing at least two of the
CC components (a) hormone that stimulates production of cyclic adenosine
CC monophosphate (cAMP) (b) inhibitor of cyclic nucleotide degradation
CC and (c) hormone that stimulates production of cyclic guanosine
CC monophosphate (cGMP). This composition has antidiabetic, hypoglycaemic,
CC and anti-obesity activity. The product described in the invention
CC can be used for treatment of (i) diabetes mellitus (non-)insulin
CC dependent or mature onset diabetes, (ii) secondary hyperglycaemia
CC associated with pancreatic disease (chronic pancreatitis, pancreasectomy
CC or hemochromatosis) or endocrine disease (acromegaly, Cushing's
CC syndrome, pheochromocytoma or hyperthyroidism), (iii) iatrogenic
CC hyperglycaemia (e.g. caused by benzothiadiazine diuretics, diazoxide or
CC glucocorticoids), (iv) pathological glucose tolerance, (v) hyperglycaemia,
CC (vi) dyslipoproteinemia, (vii) obesity, (viii) hyperlipoproteinemia
CC and/or hypotension.
XX
SO Sequence 28 AA:

Query Match 100.0%; Score 144; DB 20; Length 28;
Best Local Similarity 100.0%; Pred. No. 1.7e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAKEFIAMLVK 28
DB 1 haegttsdvssylegqaakefiawlvk 28

RESULT 7
ID AAB07295 standard; peptide: 28 AA.
XX AAB07295;
AC
XX 17-JUN-2001 (first entry)
DT
XX
DE Modified Glucagon Like Peptide (GLP) # 5.
XX
XX Peptide amidation: C-terminal alpha-carboxamide; GLP; clostiripain;
KM amidative cleavage; clostiridopeptidase B; glucagon like peptide.
XX
OS Unidentified.
XX
XX WO200028067-A1.
PN
XX 18-MAY-2000.
PD
XX
PF 05-NOV-1999; 99WO-US26060.
XX
XX 06-NOV-1998; 98US-0107311.
PR
XX 16-DEC-1998; 98US-0212663.
PR
XX (BION-) BIONEERASKA INC.
PA
XX
PI Dormedy D, Stout JS, Strydom DJ, Holmquist B, Wagner FW;
XX
XX WPI: 2000-376575/32.
DR
XX
PT Preparation of peptide with C-terminal alpha-carboxamide residue, e.g.
PT growth hormone releasing factors comprises treating substrate with
PT ammonia in presence of clostiripain
XX
XX Example 1; Page 16; 48pp; English.
PS
XX The present sequence is a modified glucagon like peptide (GLP) fragment.
CC This sequence is composed of residues 7 to 34 of GLP, and was produced
CC by attempted clostiripain catalysed amidation of another modified GLP
CC fragment (AAB07291) at pH 7.9. Hydrolysis at Lys34 occurred to produce the

CC present sequence. The expected product would have had a C-terminal
CC alpha-carboxamide residue. The peptide of AAB07291 was treated with an
CC ammonia reagent and clostiripain (also known as clostiridopeptidase B).
CC Clostiripain is an extracellular thiol endoprotease from Clostridia.
CC Clostiripain cleaves arginine containing peptides amidatively at an
CC Arg-Xaa peptide bond.
XX
SO Sequence 28 AA:

Query Match 100.0%; Score 144; DB 21; Length 28;
Best Local Similarity 100.0%; Pred. No. 1.7e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAKEFIAMLVK 28
DB 1 haegttsdvssylegqaakefiawlvk 28

RESULT 8
ID AAY78952 standard; peptide: 28 AA.
XX AAY78952;
AC
XX 05-JUN-2000 (first entry)
DT
XX
DE Glucagon-like peptide-1 fragment GLP-1 (7-34).
XX
XX Glucagon-like peptide-1; GLP-1; insulin producing cell; insulin; amylase;
KM diabetes mellitus type 1; human; livestock; pet.
XX
XX Homo sapiens.
OS
XX
XX WO200009666-A2.
PN
XX 24-FEB-2000.
PD
XX
PF 10-AUG-1999; 99WO-US18099.
XX
XX 10-AUG-1998; 98US-0095917.
PR
XX
XX (USSH) US DEPT HEALTH & HUMAN SERVICES.
PA
XX
PI Egan J, Perfetti R, Passaniti A, Greig N, Holloway H;
XX
XX WPI: 2000-205999/18.
DR
XX
XX Differentiation of non-insulin producing cells into insulin-producing
PT cells by glucagon-like peptide-1 or extendin-4, used to treat diabetes
PT mellitus
XX
XX Disclosure; Page 16; 119pp; English.
PS
XX
XX This sequence represents a glucagon-like peptide-1 (GLP-1) fragment.
CC GLP-1 is a hormone normally secreted by neuroendocrine cells of the gut,
CC in response to food. GLP-1 fragments or extendin-4 growth factor
CC fragments can be used in the production of a population of
CC insulin-producing cells from a population of non-insulin producing cells.
CC The methods may also be used to promote pancreatic amylase producing
CC cells to produce both insulin and amylase. The methods are used to treat
CC diabetes mellitus (type 1) in humans, domesticated animals, livestock and
CC pets.
XX
SO Sequence 28 AA:

Query Match 100.0%; Score 144; DB 21; Length 28;
Best Local Similarity 100.0%; Pred. No. 1.7e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAKEFIAMLVK 28
DB 1 haegttsdvssylegqaakefiawlvk 28

DB 1 haegftsdvssyleggaakefiawlvk 28

RESULT 9
AAE09258
ID AAE09258 standard; peptide: 28 AA.
XX
AC AAE09258;
XX
DT 15-NOV-2001 (first entry)
XX
DE Human glucagon-like peptide-1 related molecule (GLP)-1 derivative #5.
XX
KW Human: glucagon-like peptide-1 related molecule; GLP; GLP crystal;
KW manufacturing process; pharmaceutical formulation; therapy; diabetes;
KM obesity.
XX
OS Homo sapiens.
OS Synthetic.
XX
PN US2001014666-A1.
XX
PD 16-AUG-2001
XX
PF 11-DEC-1998; 98US-0209799.
XX
PR 11-DEC-1998; 98US-0209799.
XX
PA (HERM/) HERMELING R N.
PA (HOFF/) HOFFMANN J A.
PA (NARA/) NARASIMHAN C.
XX
PI Hermeling RN, Hoffmann JA, Narasimhan C;
XX
DR WPI: 2001-529113/58.
XX
PT Glucagon-like peptide-1 crystals for treating diabetes are prepared
PT from mother liquor containing glucagon-like-peptide-1 related molecules
PT dissolved in buffered solution and alcohol
XX
PS Disclosure: Page 11: 17pp; English.
XX
CC The present sequence is a human glucagon-like peptide-1 related molecule
CC (GLP)-1 derivative. The single tetragonal flat rod-shaped or plate-like
CC crystals of a GLP are prepared from a crystallisation solution containing
CC a GLP, a buffering agent, an alcohol or a mono or disaccharide and
CC optionally ammonium sulphate or zinc. The GLP crystals are used in
CC manufacturing process, in pharmaceutical formulations for treating
CC diabetes, obesity or related conditions in mammals.
XX
SQ Sequence 28 AA:

Query Match 100.0%; Score 144; DB 22; Length 28;
Best Local Similarity 100.0%; Pred. No. 1.7e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSSYLEGGAKEFIAMLVK 28
DB 1 haegftsdvssyleggaakefiawlvk 28

RESULT 10
AAG63270
ID AAG63270 standard; protein: 28 AA.
XX
AC AAG63270;
XX
DT 01-OCT-2001 (first entry)
XX
DE Amino acid sequence of glucagon-like peptide 1 (GLP-1) analogue.
XX
KW Glucagon-like peptide 1; GLP-1; soluble GLP-1.

XX
OS Synthetic.
XX
FH Key Location/Qualifiers
FT Misc-difference 28
FT /note= "this residue is Lys-COOH or Lys-Gly-COOH"
XX
PN WO200155213-A2.
XX
PD 02-AUG-2001.
XX
PF 16-JAN-2001; 2001WO-US00010.
XX
PR 27-JAN-2000; 2000US-0178438.
PR 09-AUG-2000; 2000US-0224058.
XX
PA (ELIT) LILLY & CO ELI.
XX
PI Procuty WFI, Rinella JVI;
XX
DR WPI: 2001-476192/51.
XX
PT Preparing a Glucagon-like peptide 1 compound soluble in aqueous
PT solution at pH 7.4, comprises dissolving the insoluble form in aqueous
PT base or acid and neutralizing the solution
XX
PS Disclosure: Page 12: 49pp; English.
XX
CC The present sequence represents a glucagon-like peptide 1 (GLP-1)
CC analogue. The specification describes a method for preparing a GLP-1
CC compound that is soluble in aqueous form at pH 7.4 from a GLP-1
CC compound that is insoluble in aqueous form at pH 7.4. The method
CC comprises dissolving the insoluble compound in aqueous base or acid;
CC neutralizing the GLP-1 solution to a pH at which no amino acid
CC racemisation of the GLP-1 compound occurs; and isolating GLP-1 from
CC the neutralized solution. The method is used to prepare a soluble form
CC of a GLP-1 compound. The soluble form of GLP-1 is physiologically active.
XX
SQ Sequence 28 AA:

Query Match 100.0%; Score 144; DB 22; Length 28;
Best Local Similarity 100.0%; Pred. No. 1.7e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSSYLEGGAKEFIAMLVK 28
DB 1 haegftsdvssyleggaakefiawlvk 28

RESULT 11
AAG63273
ID AAG63273 standard; protein: 28 AA.
XX
AC AAG63273;
XX
DT 01-OCT-2001 (first entry)
XX
DE An insoluble glucagon-like peptide 1 (GLP-1) compound.
XX
KW Glucagon-like peptide 1; GLP-1; soluble GLP-1.
XX
OS Synthetic.
XX
PN WO200155213-A2.
XX
PD 02-AUG-2001.
XX
PF 16-JAN-2001; 2001WO-US00010.
XX
PR 27-JAN-2000; 2000US-0178438.
PR 09-AUG-2000; 2000US-0224058.
XX

XX AC AAR63248;
 XX DT 02-MAY-1995 (first entry)
 XX DE Insulinotropin (GLP-1(7-35)) for use in treating NIDDM.
 XX KW insulinotropic activity: GLP-1; glucagon-like protein 1; NIDDM;
 XX KW non-insulin dependent diabetes mellitus; insulinotropin; truncated.
 XX OS Synthetic.
 XX PN EP619322-A.
 XX PD 12-OCT-1994.
 XX PF 10-FEB-1994; 94EP-0300981.
 XX PR 07-APR-1993; 93US-0044133.
 XX PA (PR12) PRIZER INC.
 XX PA (PR12) PRIZER CORP.
 XX PI Danley DE, Gelfand RA, Geoghegan KF, Kim Y, Lambert WJ;
 XX PI Q1 H, Oih, Hong Q, Yesook K;
 XX DR WPI: 1994-311774/39.
 XX PT Treatment of non-insulin dependent diabetes mellitus - using a
 XX PT glucagon-like peptide 1 or deriv. with prolonged action for
 XX PT sustained glycaemic control
 XX PS Claim 2; Page 46; 70pp: English.
 XX CC This peptide is GLP-1(7-35) [GLP = glucagon-like peptide], a truncated
 XX CC deriv. of GLP-1. GLP-1 and its deriv.s are useful in the treatment of
 XX CC Non-Insulin Dependent Diabetes Mellitus (NIDDM). During processing in
 XX CC the pancreas and intestine, GLP-1 (AAR63245) is converted to a 31 amino
 XX CC acid peptide having amino acids 7-37 of GLP-1, alternatively referred
 XX CC to as insulinotropin. GLP-1(7-37) has insulinotropic activity, i.e. it
 XX CC is able to stimulate, or cause to be stimulated, the synthesis of the
 XX CC hormone insulin. Other deriv.s of GLP-1 are shown in AAR63246-51. It
 XX CC has been discovered that prolonged plasma elevations of GLP-1, and
 XX CC related polypeptides, are necessary during the meal and beyond to
 XX CC achieve sustained glycaemic control in patients with NIDDM. The invention
 XX CC provides a compsn. that has prolonged action after each administration.
 XX SQ Sequence 29 AA;
 SQ Query Match 100.0%; Score 144; DB 15; Length 29;
 Best Local Similarity 100.0%; Pred. No. 1.8e-14;
 Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
 QY 1 HAEGFTSDVSSYLEGQAAKEFIAWLK 28
 ||||||||||||||||||
 DB 1 haegftsdvssylegqaakefiawlvk 28
 RESULT 15
 AAR69075
 ID AAR69075 standard; peptide: 29 AA.
 XX AAR69075;
 XX DT 23-AUG-1995 (first entry)
 XX DE Glycogen Like Peptide 1 (7-34) + G-R-NH2, G-R-G or G-R-G-NH2.
 XX KW Glycogen Like Peptide; endopeptidase; transpeptidation; trypsin;
 XX KW cleavage.
 XX OS Synthetic.

XX FH Key Location/Qualifiers
 XX FT Misc-difference 29 /Label= G-R-NH2; G-R-G, OR G-R-G-NH2
 XX PN WO9503405-A.
 XX PD 02-FEB-1995.
 XX PF 19-JUL-1994; 94WO-US08125.
 XX PR 20-JUL-1993; 93US-0095162.
 XX PA (BION-) BIONEERASKA INC.
 XX PI Henriksen D, Manning S, Partridge B, Stout J, Wagner FW;
 XX DR WPI: 1995-075233/10.
 XX PT Transpeptidation of recombinant polypeptides - using
 XX PT endopeptidase such as trypsin or thrombin to modify C-terminal
 XX PT residue.
 XX PS Claim 22; Page 58; 69pp: English.
 XX CC The native or naturally occurring sequence of growth hormone
 XX CC releasing factor is AAR69073. A pharmaceutical compsn. of
 XX CC GRF(1-44)-NH2 produced by the method of the invention is claimed.
 XX CC AAR69075 does not seem to be referred to the patent application apart
 XX CC from in the claims where a polypeptide with this sequence produced
 XX CC by the method of the invention is claimed. The peptide appears to
 XX CC be glycogen like peptide 1 residues 7-34 plus a carboxy terminal
 XX CC group for trypsin cleavage.
 XX SQ Sequence 29 AA;
 SQ Query Match 100.0%; Score 144; DB 16; Length 29;
 Best Local Similarity 100.0%; Pred. No. 1.8e-14;
 Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
 QY 1 HAEGFTSDVSSYLEGQAAKEFIAWLK 28
 ||||||||||||||||||
 DB 1 haegftsdvssylegqaakefiawlvk 28

Search completed: July 30, 2002, 08:45:32
 Job time: 633 sec

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OM protein - protein search, using sw model

Run on: July 30, 2002, 08:43:09 ; Search time 13.13 Seconds
(without alignments)
52.088 Million cell updates/sec

Title: US-09-508-083-1
144
Sequence: 1 HAEGFTSDVSYLEGOAKEFIAMLVK 28

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 231628 seqs, 24425594 residues

Total number of hits satisfying chosen parameters: 231628

Minimum DB seq length: 0
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : Issued_Patents_AA:*
1: /cgn2_6/ptodata/2/1aa/5A.COMB.pep:*
2: /cgn2_6/ptodata/2/1aa/5B.COMB.pep:*
3: /cgn2_6/ptodata/2/1aa/6A.COMB.pep:*
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6: /cgn2_6/ptodata/2/1aa/Backfiles1.pep:*

Pred. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed,
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB	ID	Description
1	144	100.0	28	1	US-08-095-162-4	Sequence 4, Appl1
2	144	100.0	28	1	US-08-470-220A-4	Sequence 4, Appl1
3	144	100.0	28	3	US-08-967-374-4	Sequence 4, Appl1
4	144	100.0	28	4	US-08-472-349-5	Sequence 5, Appl1
5	144	100.0	28	5	PCR-US95-15800-21	Sequence 21, Appl1
6	144	100.0	29	1	US-08-095-162-18	Sequence 18, Appl1
7	144	100.0	29	1	US-08-470-220A-18	Sequence 18, Appl1
8	144	100.0	29	3	US-08-967-374-18	Sequence 18, Appl1
9	144	100.0	29	4	US-08-472-349-4	Sequence 4, Appl1
10	144	100.0	30	1	US-08-066-480-6	Sequence 6, Appl1
11	144	100.0	30	1	US-08-095-162-1	Sequence 1, Appl1
12	144	100.0	30	1	US-08-470-220A-1	Sequence 1, Appl1
13	144	100.0	30	2	US-08-927-227-1	Sequence 1, Appl1
14	144	100.0	30	3	US-08-967-374-1	Sequence 1, Appl1
15	144	100.0	30	4	US-09-348-136-1	Sequence 4, Appl1
16	144	100.0	30	4	US-08-961-405A-5	Sequence 5, Appl1
17	144	100.0	30	4	US-08-915-918A-5	Sequence 5, Appl1
18	144	100.0	30	4	US-09-302-596-4	Sequence 4, Appl1
19	144	100.0	30	4	US-08-472-349-3	Sequence 4, Appl1
20	144	100.0	30	4	US-09-333-415-4	Sequence 4, Appl1
21	144	100.0	30	4	US-09-585-181A-4	Sequence 4, Appl1
22	144	100.0	30	5	PCR-US95-15800-27	Sequence 27, Appl1
23	144	100.0	31	1	US-09-025-951-1	Sequence 1, Appl1
24	144	100.0	31	1	US-08-095-162-2	Sequence 2, Appl1
25	144	100.0	31	1	US-08-095-162-3	Sequence 3, Appl1
26	144	100.0	31	1	US-08-295-913A-1	Sequence 1, Appl1
27	144	100.0	31	1	US-08-470-220A-2	Sequence 2, Appl1

28	144	100.0	31	1	US-08-470-220A-3	Sequence 3, Appl1
29	144	100.0	31	2	US-08-807-263-3	Sequence 3, Appl1
30	144	100.0	31	3	US-08-967-374-2	Sequence 2, Appl1
31	144	100.0	31	3	US-08-967-374-3	Sequence 3, Appl1
32	144	100.0	31	4	US-08-961-405A-1	Sequence 1, Appl1
33	144	100.0	31	4	US-09-258-750-3	Sequence 3, Appl1
34	144	100.0	31	4	US-08-915-918A-1	Sequence 1, Appl1
35	144	100.0	31	4	US-09-302-596-3	Sequence 3, Appl1
36	144	100.0	31	4	US-08-472-349-2	Sequence 2, Appl1
37	144	100.0	31	4	US-09-623-618B-2	Sequence 2, Appl1
38	144	100.0	31	4	US-09-623-618B-17	Sequence 17, Appl1
39	144	100.0	31	4	US-09-623-618B-27	Sequence 27, Appl1
40	144	100.0	31	4	US-09-623-618B-28	Sequence 28, Appl1
41	144	100.0	31	4	US-09-333-415-3	Sequence 3, Appl1
42	144	100.0	31	5	PCR-US95-15800-28	Sequence 28, Appl1
43	144	100.0	31	5	PCR-US95-15800-30	Sequence 30, Appl1
44	144	100.0	34	1	US-08-095-162-6	Sequence 6, Appl1
45	144	100.0	34	1	US-08-470-220A-6	Sequence 6, Appl1

ALIGNMENTS

RESULT 1
US-08-095-162-4
; Sequence 4, Application US/08095162
; Patent No. 5512459
; GENERAL INFORMATION:
; APPLICANT: Wagner, Fred W.
; APPLICANT: Stout, Jay
; APPLICANT: Henriksen, Dennis
; APPLICANT: Parridge, Bruce
; APPLICANT: Manning, Shane
; TITLE OF INVENTION: Enzymatic Method for Modification of
; NUMBER OF SEQUENCES: 26
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Merchant & Gould
; STREET: 3100 No. 551245west Center
; CITY: Minneapolis
; STATE: MN
; COUNTRY: USA
; ZIP: 55402
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/095,162
; FILING DATE: 20-JUL-1993
; CLASSIFICATION: 514
; ATTORNEY/AGENT INFORMATION:
; NAME: Nelson, Albin J.
; REGISTRATION NUMBER: 28, 659
; REFERENCE/DOCKET NUMBER: 8648.32-US01
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 612-332-5300
; TELEFAX: 612-332-9081
; INFORMATION FOR SEQ ID NO: 4:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 28 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
; IMMEDIATE SOURCE:
; CLONE: GLP1 (7-34)
; US-08-095-162-4
Query Match 100.0%; Score 144; DB 1; Length 28;
Best Local Similarity 100.0%; Pred. No. 9.4e-15;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSSYLEGQAAKEFIAMLVK 28
DB 1 HAEGFTSDVSSYLEGQAAKEFIAMLVK 28

RESULT 2
US-08-470-220A-4

Sequence 4, Application US/08470220A
Patent No. 5707826

GENERAL INFORMATION:

APPLICANT: Wagner, Fred W.
APPLICANT: Scout, Jay
APPLICANT: Henriksen, Dennis
APPLICANT: Partridge, Bruce
APPLICANT: Manning, Shane
TITLE OF INVENTION: Enzymatic Method for Modification of
TITLE OF INVENTION: Recombinant Polypeptides
NUMBER OF SEQUENCES: 26
CORRESPONDENCE ADDRESS:
ADDRESSEE: Merchant & Gould
STREET: 3100 No. 5707826west Center
CITY: Minneapolis
STATE: MN
COUNTRY: USA
ZIP: 55402

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/470,220A
FILING DATE: 06-JUN-1995
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/095,162
FILING DATE: 20-JUL-1993
ATTORNEY/AGENT INFORMATION:
NAME: Nelson, Albin J.
REGISTRATION NUMBER: 28,659
REFERENCE/DOCKET NUMBER: 8648.32-US01
TELECOMMUNICATION INFORMATION:
TELEPHONE: 612-332-5300
TELEFAX: 612-332-9081

INFORMATION FOR SEQ ID NO: 4:
SEQUENCE CHARACTERISTICS:
LENGTH: 28 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: peptide
IMMEDIATE SOURCE:
CLONE: GLP1 (7-34)
US-08-470-220A-4

Query Match 100.0%; Score 144; DB 1; Length 28;
Best Local Similarity 100.0%; Pred. No. 9.4e-15;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSSYLEGQAAKEFIAMLVK 28
DB 1 HAEGFTSDVSSYLEGQAAKEFIAMLVK 28

RESULT 3
US-08-967-374-4

Sequence 4, Application US/08967374
Patent No. 6037143
GENERAL INFORMATION:
APPLICANT: Wagner, Fred W.
APPLICANT: Stout, Jay
APPLICANT: Henriksen, Dennis

APPLICANT: Partridge, Bruce
APPLICANT: Manning, Shane
TITLE OF INVENTION: Enzymatic Method for Modification of
TITLE OF INVENTION: Recombinant Polypeptides
NUMBER OF SEQUENCES: 26
CORRESPONDENCE ADDRESS:
ADDRESSEE: Merchant & Gould
STREET: 3100 No. 6037143west Center
CITY: Minneapolis
STATE: MN
COUNTRY: USA
ZIP: 55402

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/967,374
FILING DATE:
CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/520,485
FILING DATE: 29-AUG-1995
ATTORNEY/AGENT INFORMATION:
NAME: Carter, Charles G.
REGISTRATION NUMBER: 35,093
REFERENCE/DOCKET NUMBER: 8648.32-US01
TELECOMMUNICATION INFORMATION:
TELEPHONE: 612-332-5300
TELEFAX: 612-332-9081

INFORMATION FOR SEQ ID NO: 4:
SEQUENCE CHARACTERISTICS:
LENGTH: 28 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: peptide
IMMEDIATE SOURCE:
CLONE: GLP1 (7-34)
US-08-967-374-4

Query Match 100.0%; Score 144; DB 3; Length 28;
Best Local Similarity 100.0%; Pred. No. 9.4e-15;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSSYLEGQAAKEFIAMLVK 28
DB 1 HAEGFTSDVSSYLEGQAAKEFIAMLVK 28

RESULT 4
US-08-472-349-5

Sequence 5, Application US/08472349
Patent No. 6284727

GENERAL INFORMATION:

APPLICANT: Kim, Yesook
APPLICANT: Lambert, William J.
APPLICANT: Qi, Hong
APPLICANT: Gelfand, Robert A.
APPLICANT: Geoghegan, Kieran F.
APPLICANT: Danley, Dennis E.
TITLE OF INVENTION: Prolonged Delivery of Peptides
NUMBER OF SEQUENCES: 7
CORRESPONDENCE ADDRESS:
ADDRESSEE: Pfizer Inc
STREET: 235 East 42nd Street, 20th Floor
CITY: New York
STATE: New York
COUNTRY: U.S.A.
ZIP: 10017-5755

COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/472,349
FILING DATE:
CLASSIFICATION: 514
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/181,655
FILING DATE:
ATTORNEY/AGENT INFORMATION:
NAME: Sheyfa, Robert F.
REGISTRATION NUMBER: 31,304
REFERENCE/DOCKET NUMBER: PC8391
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212)573-1189
TELEFAX: (212)573-1939
TELEX: N/A
INFORMATION FOR SEQ ID NO: 5:
SEQUENCE CHARACTERISTICS:
LENGTH: 28 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: peptide
HYPOTHETICAL: NO
ANTI-SENSE: NO
FRAGMENT TYPE: N-terminal
ORIGINAL SOURCE:
ORGANISM: N/A
STRAIN: N/A
INDIVIDUAL ISOLATE: N/A
HAPLOTYPE: N/A
CELL LINE: N/A
IMMEDIATE SOURCE:
LIBRARY: N/A
CLONE: N/A
POSITION IN GENOME:
CHROMOSOME/SEGMENT: N/A
MAP POSITION: N/A
US-08-472-349-5

Query Match 100.0%; Score 144; DB 4; Length 28;
Best Local Similarity 100.0%; Pred. No. 9.4e-15;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAQKEFIAMLVK 28
DB 1 HAEGFTSDVSSYLEGQAQKEFIAMLVK 28

RESULT 5
PCT-US95-15800-21
Sequence 21, Application PC/TUS9515800
GENERAL INFORMATION:
APPLICANT: Bionebbraska, Inc.
TITLE OF INVENTION: PRODUCTION OF PEPTIDES USING
TITLE OF INVENTION: RECOMBINANT FUSION PROTEIN CONSTRUCTS
NUMBER OF SEQUENCES: 33
CORRESPONDENCE ADDRESS:
ADDRESSEE: Merchant & Gould
STREET: 3100 Norwest Center, 90 S. 7th Street
CITY: Minneapolis
STATE: MN
COUNTRY: U.S.A.
ZIP: 55402
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
COMPUTER: IBM Compatible
OPERATING SYSTEM: DOS
SOFTWARE: FASTSEQ Version 1.5
CURRENT APPLICATION DATA:

APPLICATION NUMBER: PCT/US95/15800
FILING DATE: 07-DEC-1995
CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/350,530
FILING DATE: 07-DEC-1994
ATTORNEY/AGENT INFORMATION:
NAME: Carter, Charles G
REGISTRATION NUMBER: 35,093
REFERENCE/DOCKET NUMBER: 8648.45USMO
TELECOMMUNICATION INFORMATION:
TELEPHONE: 612/332-5300
TELEFAX: 612/332-9081
TELEX:
INFORMATION FOR SEQ ID NO: 21:
SEQUENCE CHARACTERISTICS:
LENGTH: 28 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: peptide
HYPOTHETICAL: NO
ANTI-SENSE: NO
FRAGMENT TYPE: Internal
ORIGINAL SOURCE:
PCT-US95-15800-21

Query Match 100.0%; Score 144; DB 5; Length 28;
Best Local Similarity 100.0%; Pred. No. 9.4e-15;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAQKEFIAMLVK 28
DB 1 HAEGFTSDVSSYLEGQAQKEFIAMLVK 28

RESULT 6
US-08-095-162-18
Sequence 18, Application US/08095162
Patent No. 5512459
GENERAL INFORMATION:
APPLICANT: Wagner, Fred W.
APPLICANT: Stout, Jay
APPLICANT: Henriksen, Dennis
APPLICANT: Partridge, Bruce
APPLICANT: Manning, Shane
TITLE OF INVENTION: Enzymatic Method for Modification of
TITLE OF INVENTION: Recombinant Polypeptides
NUMBER OF SEQUENCES: 26
CORRESPONDENCE ADDRESS:
ADDRESSEE: Merchant & Gould
STREET: 3100 No. 5512459west Center
CITY: Minneapolis
STATE: MN
COUNTRY: USA
ZIP: 55402
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/095,162
FILING DATE: 20-JUL-1993
CLASSIFICATION: 514
ATTORNEY/AGENT INFORMATION:
NAME: Nelson, Aldin J.
REGISTRATION NUMBER: 28,659
REFERENCE/DOCKET NUMBER: 8648.32-US01
TELECOMMUNICATION INFORMATION:
TELEPHONE: 612-332-5300
TELEFAX: 612-332-9081

INFORMATION FOR SEQ ID NO: 18:
SEQUENCE CHARACTERISTICS:
LENGTH: 29 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: peptide
US-08-093-162-18

Query Match 100.0%; Score 144; DB 1; Length 29;
Best Local Similarity 100.0%; Pred. No. 9.8e-15;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 HAEGETSDVSSYLEGQAKKEFIAMLVK 28
DB 1 HAEGETSDVSSYLEGQAKKEFIAMLVK 28

RESULT 7
US-08-470-220A-18
Sequence 18, Application US/08470220A
Patent No. 5707826
GENERAL INFORMATION:
APPLICANT: Wagner, Fred W.
APPLICANT: Stout, Jay
APPLICANT: Henriksen, Dennis
APPLICANT: Partidge, Bruce
APPLICANT: Manning, Shane
TITLE OF INVENTION: Enzymatic Method for Modification of
NUMBER OF SEQUENCES: 26
CORRESPONDENCE ADDRESS:
ADDRESSEE: Merchant & Gould
STREET: 3100 No. 5707826west Center
CITY: Minneapolis
STATE: MN
COUNTRY: USA
ZIP: 55402
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/470.220A
FILING DATE: 06-JUN-1995
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/095.162
FILING DATE: 20-JUL-1993
ATTORNEY/AGENT INFORMATION:
NAME: Nelson, Albin J.
REGISTRATION NUMBER: 28,659
REFERENCE/DOCKET NUMBER: 8648.32-US01
TELECOMMUNICATION INFORMATION:
TELEPHONE: 612-332-5300
TELEFAX: 612-332-9081
INFORMATION FOR SEQ ID NO: 18:
SEQUENCE CHARACTERISTICS:
LENGTH: 29 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: peptide
US-08-470-220A-18

Query Match 100.0%; Score 144; DB 1; Length 29;
Best Local Similarity 100.0%; Pred. No. 9.8e-15;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 HAEGETSDVSSYLEGQAKKEFIAMLVK 28
DB 1 HAEGETSDVSSYLEGQAKKEFIAMLVK 28

RESULT 8
US-08-967-374-18
Sequence 18, Application US/08967374
Patent No. 6037143
GENERAL INFORMATION:
APPLICANT: Wagner, Fred W.
APPLICANT: Stout, Jay
APPLICANT: Henriksen, Dennis
APPLICANT: Partidge, Bruce
APPLICANT: Manning, Shane
TITLE OF INVENTION: Enzymatic Method for Modification of
NUMBER OF SEQUENCES: 26
CORRESPONDENCE ADDRESS:
ADDRESSEE: Merchant & Gould
STREET: 3100 No. 6037143west Center
CITY: Minneapolis
STATE: MN
COUNTRY: USA
ZIP: 55402
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/967.374
FILING DATE:
CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/520.485
FILING DATE: 29-AUG-1995
ATTORNEY/AGENT INFORMATION:
NAME: Carter, Charles G.
REGISTRATION NUMBER: 35,093
REFERENCE/DOCKET NUMBER: 8648.32-US01
TELECOMMUNICATION INFORMATION:
TELEPHONE: 612-332-5300
TELEFAX: 612-332-9081
INFORMATION FOR SEQ ID NO: 18:
SEQUENCE CHARACTERISTICS:
LENGTH: 29 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: peptide
US-08-967-374-18

Query Match 100.0%; Score 144; DB 3; Length 29;
Best Local Similarity 100.0%; Pred. No. 9.8e-15;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 HAEGETSDVSSYLEGQAKKEFIAMLVK 28
DB 1 HAEGETSDVSSYLEGQAKKEFIAMLVK 28

RESULT 9
US-08-472-349-4
Sequence 4, Application US/08472349
Patent No. 6284727
GENERAL INFORMATION:
APPLICANT: Kim, Yesook
APPLICANT: Lambert, William J.
APPLICANT: Qi, Hong
APPLICANT: Gelfand, Robert A.
APPLICANT: Geoghegan, Kieran F.
APPLICANT: Danley, Dennis E.
TITLE OF INVENTION: Prolonged Delivery of Peptides
NUMBER OF SEQUENCES: 7
CORRESPONDENCE ADDRESS:

ADDRESSEE: Pfizer Inc
STREET: 235 East 42nd Street, 20th Floor
CITY: New York
STATE: New York
COUNTRY: U.S.A.
ZIP: 10017-5755
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patent In Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/472,349
FILING DATE:
CLASSIFICATION: 514
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/181,655
FILING DATE:
ATTORNEY/AGENT INFORMATION:
NAME: Shevka, Robert F.
REGISTRATION NUMBER: 31,304
REFERENCE/DOCKET NUMBER: PC8391
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212)573-1189
TELEFAX: (212)573-1939
TELEX: N/A
INFORMATION FOR SEQ ID NO: 4:
SEQUENCE CHARACTERISTICS:
LENGTH: 29 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: peptide
HYPOTHETICAL: NO
ANTI-SENSE: NO
FRAGMENT TYPE: N-terminal
ORIGINAL SOURCE:
ORGANISM: N/A
STRAIN: N/A
INDIVIDUAL ISOLATE: N/A
HAPLOTYPE: N/A
CELL LINE: N/A
IMMEDIATE SOURCE:
LIBRARY: N/A
CLONE: N/A
POSITION IN GENOME:
CHROMOSOME/SEGMENT: N/A
MAP POSITION: N/A
US-08-472-349-4

Query Match 100.0%; Score 144; DB 4; Length 29;
Best Local Similarity 100.0%; Pred. No. 9.8e-15;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAAKEFTIAWLK 28
DB 1 HAEGFTSDVSSYLEGQAAKEFTIAWLK 28

RESULT 10
US-08-066-480-6
Sequence 6, Application US/08066480
Patent No. 5424286
GENERAL INFORMATION:
APPLICANT: Eng, John
TITLE OF INVENTION: Pharmaceutical Compositions And Use of
Extendin-3 and Extendin-4 for Treatment of Diabetes Mellitus
NUMBER OF SEQUENCES: 7
CORRESPONDENCE ADDRESS:
ADDRESSEE: Allegretti & Mitcoff, Ltd.
STREET: 10 S. Wacker Drive
CITY: Chicago

STATE: Illinois
COUNTRY: USA
ZIP: 60606
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patent In Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/066,480
FILING DATE: 24-MAR-1993
CLASSIFICATION: 514
ATTORNEY/AGENT INFORMATION:
NAME: McDonnell, John J.
REGISTRATION NUMBER: 26,949
REFERENCE/DOCKET NUMBER: 93,084
TELECOMMUNICATION INFORMATION:
TELEPHONE: 312-715-1000
TELEFAX: 312-715-1234
INFORMATION FOR SEQ ID NO: 6:
SEQUENCE CHARACTERISTICS:
LENGTH: 30 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: peptide
FEATURE:
NAME/KEY: Peptide
LOCATION: 1..30
OTHER INFORMATION: /label=GLP-1(7-36)
OTHER INFORMATION: /note="GLP-1(7-36) fragment"

US-08-066-480-6

Query Match 100.0%; Score 144; DB 1; Length 30;
Best Local Similarity 100.0%; Pred. No. 1e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAAKEFTIAWLK 28
DB 1 HAEGFTSDVSSYLEGQAAKEFTIAWLK 28

RESULT 11
US-08-095-162-1
Sequence 1, Application US/08095162
Patent No. 5512459
GENERAL INFORMATION:
APPLICANT: Wagner, Fred W.
APPLICANT: Stout, Jay
APPLICANT: Henriksen, Dennis
APPLICANT: Partridge, Bruce
APPLICANT: Manning, Shane
TITLE OF INVENTION: Enzymatic Method for Modification of
Recombinant Polypeptides
NUMBER OF SEQUENCES: 26
CORRESPONDENCE ADDRESS:
ADDRESSEE: Merchant & Gould
STREET: 3100 No. 5512459west Center
CITY: Minneapolis
STATE: MN
COUNTRY: USA
ZIP: 55402
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patent In Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/095,162
FILING DATE: 20-JUL-1993
CLASSIFICATION: 514
ATTORNEY/AGENT INFORMATION:

NAME: Nelson, Albin J.
REGISTRATION NUMBER: 28,659
REFERENCE/DOCKET NUMBER: 8648.32-US01
TELECOMMUNICATION INFORMATION:
TELEPHONE: 612-332-5300
TELEFAX: 612-332-9081
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 30 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: peptide
IMMEDIATE SOURCE:
CLONE: GLP1 7-36-NH2 (Glucagon-like Peptide)
US-08-095-162-1

Query Match 100.0%; Score 144; DB 1; Length 30;
Best Local Similarity 100.0%; Pred. No. 1e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAKEFIAMLYK 28
Db 1 HAEGFTSDVSSYLEGQAKEFIAMLYK 28

RESULT 12
US-08-470-220A-1
Sequence 1, Application US/08470220A
Patent No. 5707826
GENERAL INFORMATION:
APPLICANT: Wagner, Fred W.
APPLICANT: Stout, Jay
APPLICANT: Henriksen, Dennis
APPLICANT: Partridge, Bruce
APPLICANT: Manning, Shane
TITLE OF INVENTION: Enzymatic Method for Modification of
TITLE OF INVENTION: Recombinant Polypeptides
NUMBER OF SEQUENCES: 26
CORRESPONDENCE ADDRESS:
ADDRESSEE: Merchant & Gould
STREET: 3100 No. 5707826west Center
CITY: Minneapolis
STATE: MN
COUNTRY: USA
ZIP: 55402
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/470,220A
FILING DATE: 06-JUN-1995
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/095,162
FILING DATE: 20-JUL-1993
ATTORNEY/AGENT INFORMATION:
NAME: Nelson, Albin J.
REGISTRATION NUMBER: 28,659
REFERENCE/DOCKET NUMBER: 8648.32-US01
TELECOMMUNICATION INFORMATION:
TELEPHONE: 612-332-5300
TELEFAX: 612-332-9081
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 30 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: peptide
IMMEDIATE SOURCE:
CLONE: GLP1 7-36-NH2 (Glucagon-like Peptide)

US-08-470-220A-1

Query Match 100.0%; Score 144; DB 1; Length 30;
Best Local Similarity 100.0%; Pred. No. 1e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAKEFIAMLYK 28
Db 1 HAEGFTSDVSSYLEGQAKEFIAMLYK 28

RESULT 13
US-08-927-227-1
Sequence 1, Application US/08927227A
Patent No. 5977071
GENERAL INFORMATION:
APPLICANT: Galloway, James A.
APPLICANT: Hoffmann, James A.
TITLE OF INVENTION: GLUCAGON-LIKE INSULINOTROPIC PEPTIDE ANALOGS,
FILE REFERENCE: X-9332B
CURRENT APPLICATION NUMBER: US/08/927,227A
CURRENT FILING DATE: 1997-09-10
NUMBER OF SEQ ID NOS: 1
SOFTWARE: Patentin Ver. 2.0
SEQ ID NO 1/
LENGTH: 30
TYPE: PRT
ORGANISM: Homo sapiens
FEATURE:
OTHER INFORMATION: The arginine residue at position 30 is modified so
OTHER INFORMATION: as to replace the terminal carboxyl group with an
US-08-927-227-1

Query Match 100.0%; Score 144; DB 2; Length 30;
Best Local Similarity 100.0%; Pred. No. 1e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAKEFIAMLYK 28
Db 1 HAEGFTSDVSSYLEGQAKEFIAMLYK 28

RESULT 14
US-08-967-374-1
Sequence 1, Application US/08967374
Patent No. 6037143
GENERAL INFORMATION:
APPLICANT: Wagner, Fred W.
APPLICANT: Stout, Jay
APPLICANT: Henriksen, Dennis
APPLICANT: Partridge, Bruce
APPLICANT: Manning, Shane
TITLE OF INVENTION: Enzymatic Method for Modification of
TITLE OF INVENTION: Recombinant Polypeptides
NUMBER OF SEQUENCES: 26
CORRESPONDENCE ADDRESS:
ADDRESSEE: Merchant & Gould
STREET: 3100 No. 6037143west Center
CITY: Minneapolis
STATE: MN
COUNTRY: USA
ZIP: 55402
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/967,374

FILING DATE:
CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/520,485
FILING DATE: 29-AUG-1995
ATTORNEY/AGENT INFORMATION:
NAME: Carter, Charles G.
REGISTRATION NUMBER: 35,093
REFERENCE/DOCKET NUMBER: 8648.32-USD1
TELECOMMUNICATION INFORMATION:
TELEPHONE: 612-332-5300
TELEFAX: 612-332-9081
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 30 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: peptide
IMMEDIATE SOURCE:
CLONE: GLP1 7-36-NH2 (Glucagon-like Peptide)
US-08-967-374-1

Query Match 100.0%; Score 144; DB 3; Length 30;
Best Local Similarity 100.0%; Pred. No. 1e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAAKEFIAMLYK 28
|||||
DB 1 HAEGFTSDVSSYLEGQAAKEFIAMLYK 28

RESULT 15
US-09-348-136-1
Sequence 1, Application US/09348136
Patent No. 6133235
GENERAL INFORMATION:
APPLICANT: Galloway, James A.
APPLICANT: Hoffmann, James A.
TITLE OF INVENTION: GLUCAGON-LIKE INSULINOTROPIC PEPTIDE ANALOGS,
FILE REFERENCE: X-9332B
CURRENT APPLICATION NUMBER: US/09/348,136
CURRENT FILING DATE: 1999-07-06
PRIOR APPLICATION NUMBER: US 08/927,227
PRIOR FILING DATE: 1997-09-10
NUMBER OF SEQ ID NOS: 1
SOFTWARE: Patent In Ver. 2.0
SEQ ID NO 1
LENGTH: 30
TYPE: PPT
ORGANISM: Homo sapiens
FEATURE:
OTHER INFORMATION: The arginine residue at position 30 is modified so
OTHER INFORMATION: as to replace the terminal carboxyl group with an
OTHER INFORMATION: amine.
US-09-348-136-1

Query Match 100.0%; Score 144; DB 4; Length 30;
Best Local Similarity 100.0%; Pred. No. 1e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAAKEFIAMLYK 28
|||||
DB 1 HAEGFTSDVSSYLEGQAAKEFIAMLYK 28

Search completed: July 30, 2002, 08:45:52
Job time: 163 sec

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GenCore version 4.5
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OM protein - protein search, using sw model

Run on: July 30, 2002, 08:45:54 ; Search time 24.95 Seconds
(without alignments)
194.143 Million cell updates/sec

Title: US-09-508-083-1

Perfect score: 144

Sequence: 1 HAEGFTSDVSSYLEGQAAKEFIAMLVK 28

Scoring table: BLOSUM62

Searched: 562222 seqs, 172994929 residues

Total number of hits satisfying chosen parameters: 562222

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Listing first 45 summaries

Database : SPTREMBL.19.*

1: sp_archaea.*
2: sp_bacteria.*
3: sp_fungi.*
4: sp_human.*
5: sp_invertebrate.*
6: sp_mammal.*
7: sp_mhc.*
8: sp_organelle.*
9: sp_phage.*
10: sp_plant.*
11: sp_protist.*
12: sp_virus.*
13: sp_vertebrate.*
14: sp_unclassified.*
15: sp_virus.*
16: sp_bacteriophage.*
17: sp_archaeap.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	144	100.0	180	6	Q95LGO
2	132	91.7	206	13	Q91410
3	126	87.5	204	13	Q12956
4	114	79.2	266	13	Q42143
5	109	75.7	72	13	Q91409
6	109	75.7	178	13	Q91971
7	109	75.7	178	13	Q91189
8	109	75.7	219	13	Q42144
9	102	70.8	160	13	Q9PUB1
10	98	68.1	121	13	Q9PUB6
11	95	66.0	62	13	Q9PRK9
12	88	61.1	96	13	Q9DC43
13	83	57.6	120	13	Q9PUB0
14	59	41.0	130	11	Q9CVP1
15	59	41.0	144	11	Q9D887
16	59	41.0	389	2	Q93IH2

not
same length

17	58	40.3	169	4	Q960K3	Q960K3 homo sapien
18	58	40.3	171	11	Q9D227	Q9D227 mus musculus
19	54.5	37.8	426	16	P71006	P71006 bacillus su
20	53	36.8	172	13	Q9DE29	Q9DE29 brachydanio
21	52	36.1	138	13	Q98SP4	Q98SP4 oncorhynch
22	52	36.1	171	13	Q9PUB8	Q9PUB8 xenopus lae
23	52	36.1	173	13	Q98SP5	Q98SP5 oncorhynch
24	52	36.1	175	13	Q90XR4	Q90XR4 ictalurus p
25	51	35.4	352	5	Q9XX01	Q9XX01 caenorhabdi
26	51	35.4	810	4	Q9NTW8	Q9NTW8 homo sapien
27	51	35.4	867	4	Q9UFY9	Q9UFY9 homo sapien
28	50.5	35.1	372	10	Q9XEW9	Q9XEW9 cicier ariet
29	50	34.7	89	13	Q98SP6	Q98SP6 anas platyr
30	50	34.7	331	10	Q18301	Q18301 caenorhabdi
31	49	34.0	175	13	Q98RT3	Q98RT3 brachydanio
32	49	34.0	315	11	Q9D3F0	Q9D3F0 mus musculus
33	49	34.0	504	11	Q99M45	Q99M45 mus musculus
34	49	34.0	505	11	P97770	P97770 mus musculus
35	49	34.0	571	5	Q966F0	Q966F0 caenorhabdi
36	49	34.0	576	5	Q9B1T4	Q9B1T4 caenorhabdi
37	49	34.0	589	5	Q9N5B9	Q9N5B9 caenorhabdi
38	49	34.0	634	3	Q9HEE5	Q9HEE5 neurospora
39	49	34.0	786	5	Q9N5B7	Q9N5B7 caenorhabdi
40	49	34.0	835	5	Q9N5B8	Q9N5B8 caenorhabdi
41	48	33.3	28	13	Q9PRN8	Q9PRN8 carassius a
42	48	33.3	171	10	Q9FGY5	Q9FGY5 arabidopsis
43	48	33.3	575	9	Q98545	Q98545 bacterioph
44	47.5	33.0	326	16	Q956B4	Q956B4 synechocyst
45	47	32.6	155	17	Q9UYL7	Q9UYL7 pyrococcus

ALIGNMENTS

RESULT 1
Q95LGO PRELIMINARY: PRT: 180 AA.
AC Q95LGO:
DT 01-DEC-2001 (TREMREL. 19, Created)
DT 01-DEC-2001 (TREMREL. 19, Last sequence update)
DT 01-DEC-2001 (TREMREL. 19, Last annotation update)
DE PREPROGLUCAGON.
OS Canis familiaris (Dog).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.
OX NCBI_TaxID=9615;
RN [1]
RP SEQUENCE FROM N.A.
RA Irwin D.M.;
RT "cDNA cloning of proglucagon from the stomach and pancreas of the
dog."
RL Submitted (SEP-2000) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF308439; AAL09425.1;
SQ SEQUENCE 180 AA: 21114 MW: 80F66941AFC324FD CRC64;

Query Match 100.0%; Score 144; DB 6; Length 180;
Best Local Similarity 100.0%; Pred. No. 4.2e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
QY 1 HAEGFTSDVSSYLEGQAAKEFIAMLVK 28
DB 98 HAEGFTSDVSSYLEGQAAKEFIAMLVK 125
RESULT 2:
ID Q91410 PRELIMINARY: PRT: 206 AA.
AC Q91410:
DT 01-NOV-1996 (TREMREL. 01, Created)
DT 01-NOV-1996 (TREMREL. 01, Last sequence update)
DT 01-DEC-2001 (TREMREL. 19, Last annotation update)
DE PROGLUCAGON.

GN PROGLUCAGON.
 OS Gallus gallus (Chicken).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Archosauromorpha; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
 OC Gallus.
 OX NCBI_TaxID=9031;
 RN (1)
 RP SEQUENCE FROM N.A.
 RA MEDLINE=95295739; PubMed=7776976;
 RA Irwin D.M., Wong J.;
 RT "Trout and chicken proglucagon: alternative splicing generates mRNA
 transcripts encoding glucagon-like peptide 2.";
 RL Mol. Endocrinol. 9:267-277(1995).
 DR EMBL: S78477; AAB34506.1; -;
 DR HSSP: P01274; IGCN.
 DR InterPro: IPR000532; Glucagon.
 DR Pfam: PF00123; hormone2; 3.
 DR PRINTS: PR00275; GLUCAGON.
 DR SMART: SM00070; GLUCA; 3.
 DR PROSITE: PS00260; GLUCAGON; 3.
 SO SEQUENCE 206 AA; 23875 MW; AB299ELB02FC6AA4 CRC64;

Query Match 91.7%; Score 132; DB 13; Length 206;
 Best Local Similarity 88.9%; Pred. No. 3,4e-12;
 Matches 24; Conservative 3; Mismatches 0; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSSYLEGQAKEFIAMLV 27
 |||||:||||:|||||:|||||:|||||
 DB 118 HAEGTYSIDTISYLEGQAKEFIAMLV 144

RESULT 3
 ID 012956 PRELIMINARY; PRT; 204 AA.
 AC 012956; 012955:
 DT 01-JUL-1997 (TREMBLER. 04, Created)
 DT 01-JUL-1997 (TREMBLER. 04, Last sequence update)
 DT 01-JUN-2001 (TREMBLER. 17, Last annotation update)
 DE GLUCAGON PRECURSOR.
 OS Heloderma suspectum (Gila monster).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Lepidosaurs; Squamata; Scleroglossa; Anguilliformes; Helodermatidae;
 OC Heloderma.
 OX NCBI_TaxID=8554;
 RN (1)
 RP SEQUENCE FROM N.A., ALTERNATIVE SPLICING, AND TISSUE SPECIFICITY.
 RC TISSUE-SPECIFIC EXPRESSION OF UNIQUE MRNAS THAT ENCODE PROGLUCAGON-
 DERIVED PEPTIDES OR EXTENDIN 4 IN THE LIZARD.";
 RA Chen Y.E., Drucker D.U.;
 RT "Tissue-specific expression of unique mRNAs that encode proglucagon-
 derived peptides or extendin 4 in the lizard.";
 RL J. Biol. Chem. 272:4108-4115(1997).
 CC -1- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
 -1- THE BLOOD SUGAR LEVEL (BY STIMULATING).
 CC -1- ALTERNATIVE PRODUCTS: 2 ISOFORMS; LPTI (SHOWN HERE) AND LPTI ARE
 PRODUCED BY ALTERNATIVE SPLICING.
 CC -1- TISSUE SPECIFICITY: ISOFORM LPTI IS EXPRESSED IN BOTH PANCREAS AND
 PANCREAS. EXPRESSION OF ISOFORM LPTI IS RESTRICTED TO THE
 PANCREAS. NEITHER ISOFORM IS DETECTED IN SALIVARY GLAND.
 CC -1- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS IN
 RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
 CC -1- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
 DR EMBL: U77612; AAB51129.1; -;
 DR EMBL: U77611; AAB51128.1; -;
 DR HSSP: P01274; IGCN.
 DR InterPro: IPR000532; Glucagon.
 DR Pfam: PF00123; hormone2; 3.
 DR PRINTS: PR00275; GLUCAGON.
 DR SMART: SM00070; GLUCA; 3.
 DR PROSITE: PS00260; GLUCAGON; 2.
 KW Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
 Alternative splicing.

FT SIGNAL 1 20 BY SIMILARITY.
 FT PEPTIDE 21 50 GRP (GLICENTINE RELATED POLYPEPTIDE).
 FT PEPTIDE 53 81 GLUCAGON.
 FT PEPTIDE 116 145 GLUCAGON-LIKE PEPTIDE 1.
 FT PEPTIDE 164 196 GLUCAGON-LIKE PEPTIDE 2.
 FT PEPTIDE 149 149 D -> E (IN ISOFORM LPTI).
 FT VARSPLIC 150 204 MISSING (IN ISOFORM LPTI).
 SO SEQUENCE 204 AA; 23553 MW; B132E3FE46873E72 CRC64;

Query Match 87.5%; Score 126; DB 13; Length 204;
 Best Local Similarity 85.2%; Pred. No. 2,8e-11;
 Matches 23; Conservative 3; Mismatches 1; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSSYLEGQAKEFIAMLV 27
 |||||:|||||:|||||:|||||:|||||
 DB 116 HAEGRTSDISYLEGQAKEFIAMLV 142

RESULT 4
 ID 042143 PRELIMINARY; PRT; 266 AA.
 AC 042143;
 DT 01-JAN-1998 (TREMBLER. 05, Created)
 DT 01-JAN-1998 (TREMBLER. 05, Last sequence update)
 DT 01-JUN-2001 (TREMBLER. 17, Last annotation update)
 DE GLUCAGON I PRECURSOR (CONTAINS: GLUCAGON; GLUCAGON-LIKE PEPTIDE 1A
 DE (GLP-1A); GLUCAGON-LIKE PEPTIDE 1B (GLP-1B); GLUCAGON-LIKE PEPTIDE 1C
 DE (GLP-1C); GLUCAGON-LIKE PEPTIDE 2 (GLP-2)).
 OS Xenopus laevis (African clawed frog).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Amphibia; Batrachia; Anura; Mesobatrachia; Pipridae; Pipidae;
 OC Xenopodidae; Xenopus.
 OX NCBI_TaxID=8355;
 RN (1)
 RP SEQUENCE FROM N.A., AND ALTERNATIVE SPLICING.
 RC TISSUE-SPECIFIC EXPRESSION OF UNIQUE MRNAS THAT ENCODE PROGLUCAGON-
 DERIVED PEPTIDES OR EXTENDIN 4 IN THE LIZARD.";
 RA Irwin D.M., Satkunarajah M., Wen Y., Brubaker P.L., Pederson R.A.,
 RA Wheeler M.B.;
 RT "The Xenopus proglucagon gene encodes novel GLP-1-like peptides with
 RT insulinotropic properties.";
 RL Proc. Natl. Acad. Sci. U.S.A. 94:7915-7920(1997).
 CC -1- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
 -1- THE BLOOD SUGAR LEVEL.
 CC -1- ALTERNATIVE PRODUCTS: 2 ISOFORMS; 1 (SHOWN HERE) AND 2; ARE
 PRODUCED BY ALTERNATIVE SPLICING.
 CC -1- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
 DR EMBL: AF004432; AAB65660.1; -;
 DR HSSP: P01274; IGCN.
 DR InterPro: IPR000532; Glucagon.
 DR Pfam: PF00123; hormone2; 5.
 DR PRINTS: PR00275; GLUCAGON.
 DR SMART: SM00070; GLUCA; 5.
 DR PROSITE: PS00260; GLUCAGON; 5.
 KW Glucagon family; Hormone; Signal; Cleavage on pair of basic residues;
 Multi-gene family; Alternative splicing.
 FT SIGNAL 1 ? POTENTIAL.
 FT PEPTIDE 53 81 GLUCAGON.
 FT PEPTIDE 97 133 GLUCAGON-LIKE PEPTIDE 1A.
 FT PEPTIDE 142 173 GLUCAGON-LIKE PEPTIDE 1B.
 FT PEPTIDE 180 211 GLUCAGON-LIKE PEPTIDE 1C.
 FT PEPTIDE 227 259 GLUCAGON-LIKE PEPTIDE 2.
 FT VARSPLIC 214 261 MISSING (IN ISOFORM 2).
 SO SEQUENCE 266 AA; 30951 MW; 544F7BEC20A872C CRC64;

Query Match 79.2%; Score 114; DB 13; Length 266;
 Best Local Similarity 67.9%; Pred. No. 2,7e-09;
 Matches 19; Conservative 7; Mismatches 2; Indels 0; Gaps 0;
 OY 1 HAEGFTSDVSSYLEGQAKEFIAMLV 28
 |||||:|||||:|||||:|||||:|||||

DB 180 HAECTFTNDMTNLYEKAKEFGVGLIK 207

RESULT 5

Q91409 PRELIMINARY; PRT; 72 AA.

ID Q91409 Q91409: Q91232;

AC Q91409: Q91232;

DT 01-NOV-1996 (TREMblrel. 01, Created)

DT 01-NOV-1996 (TREMblrel. 01, Last sequence update)

DT 01-DEC-2001 (TREMblrel. 19, Last annotation update)

DE PROGLUCAGON (FRAGMENT).

OS Oncorhynchus tshawytscha (Chinook salmon) (King salmon).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

OC Actinopterygii; Neopterygii; Teleostei; Euteleostei;

OC Proteanthopterygii; Salmoniformes; Salmonidae; Oncorhynchus.

OX NCBI_TaxID=74940;

RN [1]

RP SEQUENCE FROM N.A.

RX MEDLINE=95295739; PubMed=7776976;

RA Irwin D.M., Wong J.;

RT "Trout and chicken proglucagon: alternative splicing generates mRNA transcripts encoding glucagon-like peptide 2.";

RL Mol. Endocrinol. 9:267-277(1995).

DR EMBL; S78474; AAD14283.1; -.

DR EMBL; U19920; AAC59670.1; -.

DR HSSP; P01274; IGCN.

DR InterPro: IPR000532; Glucagon.

DR Pfam: PF00123; hormone2; 2.

DR PRINTS; PR00275; GLUCAGON.

DR SMART; SM00070; GLUCA; 2.

DR PROSITE; PS00260; GLUCAGON; UNKNOWN_1.

FT NON_TER 1

SEQUENCE 72 AA; 8293 MW; 8584352B1C260A31 CRC64;

Query Match 75.7%; Score 109; DB 13; Length 72;

Best Local Similarity 69.2%; Pred. No. 3.3e-09;

Matches 18; Conservative 7; Mismatches 1; Indels 0; Gaps 0;

OY 1 HAECTFTSDVSSYLEGQAKKEFIAML 26

DB 39 HADGTYTSDVSTYLODQAKDFVSWL 64

Q91971

RESULT 6

ID Q91971 PRELIMINARY; PRT; 178 AA.

AC Q91971: Q91408; Q91188; Q92169;

DT 01-NOV-1996 (TREMblrel. 01, Created)

DT 01-NOV-1996 (TREMblrel. 01, Last sequence update)

DT 01-JUN-2001 (TREMblrel. 17, Last annotation update)

DE GLUCAGON I PRECURSOR.

OS Oncorhynchus mykiss (Rainbow trout) (Salmo gairdneri).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

OC Actinopterygii; Neopterygii; Teleostei; Euteleostei;

OC Proteanthopterygii; Salmoniformes; Salmonidae; Oncorhynchus.

OX NCBI_TaxID=8022;

RN [1]

RP SEQUENCE FROM N.A., AND ALTERNATIVE SPLICING.

RC TISSUE-DISTAL SMALL INTESTINE, AND PANCREAS;

RX MEDLINE=95295739; PubMed=7776976;

RA Irwin D.M., Wong J.;

RT "Trout and chicken proglucagon: alternative splicing generates mRNA transcripts encoding glucagon-like peptide 2.";

RL Mol. Endocrinol. 9:267-277(1995).

DR EMBL; U19915; AAC60210.1; JOINED.

DR EMBL; U19915; AAC60209.1; -.

DR HSSP; P01274; IGCN.

DR InterPro: IPR000532; Glucagon.

DR Pfam: PF00123; hormone2; 3.

DR PRINTS; PR00275; GLUCAGON.

DR SMART; SM00070; GLUCA; 3.

DR PROSITE; PS00260; GLUCAGON; UNKNOWN_2.

DR Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;

CC -1- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS IN

CC -1- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.

FT EMBL; U19913; AAC59667.1; -.

DR EMBL; U19917; AAC59669.1; -.

DR EMBL; U19918; AAC60212.1; -.

DR EMBL; U19919; AAC60213.1; -.

DR EMBL; U19918; AAC60213.1; JOINED.

DR EMBL; S78475; AAB34505.1; -.

DR EMBL; S78473; AAB34504.2; -.

DR HSSP; P01274; IGCN.

DR InterPro: IPR000532; Glucagon.

DR Pfam: PF00123; hormone2; 3.

DR PRINTS; PR00275; GLUCAGON.

DR SMART; SM00070; GLUCA; 3.

DR PROSITE; PS00260; GLUCAGON; 3.

DR Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;

KW Alternative splicing; Multigene family.

FT SIGNAL 1

FT PEPTIDE 1

FT PEPTIDE 2

FT PEPTIDE 3

FT PEPTIDE 4

FT PEPTIDE 5

FT PEPTIDE 6

FT PEPTIDE 7

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FT PEPTIDE ? 49 GRP (GLICENTINE RELATED POLYPEPTIDE).
 FT PEPTIDE 52 80 GLUCAGON.
 FT PEPTIDE 85 120 GLUCAGON-LIKE PEPTIDE 1.
 FT VARSPLIC 137 169 GLUCAGON-LIKE PEPTIDE 2.
 FT SEQUENCE 124 178 MISSING (IN PANCREATIC ISOFORM).
 SO SEQUENCE 178 AA: 19998 MW: E89D73866CD91C66 CRC64;

Query Match 75.7%; Score 109; DB 13; Length 178;
 Best Local Similarity 69.2%; Pred. No. 9.6e-09;
 Matches 18; Conservative 7; Mismatches 1; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSYLEGQAKEFIAMLV 26
 DB 90 HADGTYSDVSYLEGQAKEFIAMLV 115

RESULT 8
 ID 042144 PRELIMINARY; PRT; 219 AA.
 AC 042144;
 DT 01-JAN-1998 (Tremblrel. 05, Created)
 DT 01-JAN-1998 (Tremblrel. 05, Last sequence update)
 DE 01-JUN-2001 (Tremblrel. 17, Last annotation update)
 DE GLUCAGON II PRECURSOR [CONTAINS: GLUCAGON; GLUCAGON-LIKE PEPTIDE 1A (GLP-1A); GLUCAGON-LIKE PEPTIDE 1B (GLP-1B); GLUCAGON-LIKE PEPTIDE 1C (GLP-1C)].
 DE Xenopus laevis (African clawed frog).
 OS Eukaryota; Metazoa; Chordata; Craniala; Vertebrata; Euteleostomi;
 OC Amphibia; Batrachia; Anura; Mesobatrachia; Pipridae; Pipridae;
 OC Xenopodidae; Xenopus.
 NC NCB1_TaxID=8355;
 RP SEQUENCE FROM N.A.
 RP TISSUE-PANCREAS;
 RC MEDLINE-97368292; PubMed-9223287;
 RA Irwin D.M., Sackunaraiah M., Wen Y., Brubaker P.L., Pederson R.A., Wheeler M.B.;
 RT "The Xenopus proglucagon gene encodes novel GLP-1-like peptides with insulinotropic properties."
 RT Proc. Natl. Acad. Sci. U.S.A. 94:7915-7920(1997).
 CC -1- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES THE BLOOD SUGAR LEVEL.
 CC -1- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
 CC EMBL: AF004433; AAB65661.1; -;
 DR HSSP: P01274; IGCN.
 DR InterPro: IPR000532; Glucagon.
 DR Pfam: PF00123; hormone2; 4.
 DR PRINTS: PR00275; GLUCAGON.
 DR SMART: SM00070; GLUCA; 4.
 DR PROSITE: PS00260; GLUCAGON; 3.
 KW Glucagon family; Hormone; Signal; Cleavage on pair of basic residues;
 KM Multigene family.
 FT STGNL 1 20 POTENTIAL.
 FT PEPTIDE 53 81 GLUCAGON.
 FT PEPTIDE 97 133 GLUCAGON-LIKE PEPTIDE 1A.
 FT PEPTIDE 142 173 GLUCAGON-LIKE PEPTIDE 1B.
 FT PEPTIDE 180 211 GLUCAGON-LIKE PEPTIDE 1C.
 SO SEQUENCE 219 AA: 25271 MW: ACC69233C362CE0 CRC64;

Query Match 75.7%; Score 109; DB 13; Length 219;
 Best Local Similarity 66.7%; Pred. No. 1.2e-08;
 Matches 18; Conservative 7; Mismatches 2; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSYLEGQAKEFIAMLV 27
 DB 180 HAEGFTNDMTNLYEKAAKEFGVGLI 206

RESULT 9
 O9PURI PRELIMINARY; PRT; 160 AA.
 ID O9PURI

AC O9PURI; O9PRZ8; O9PRZ7;
 DT 01-MAY-2000 (Tremblrel. 13, Created)
 DT 01-MAY-2000 (Tremblrel. 13, Last sequence update)
 DT 01-DEC-2001 (Tremblrel. 19, Last annotation update)
 DE GLUCAGON I PRECURSOR [CONTAINS: GLUCAGON; GLUCAGON-LIKE PEPTIDE 1 (GLP-1); GLUCAGON-LIKE PEPTIDE 2 (GLP-2)].
 DE Petromyzon marinus (Sea lamprey).
 OS Eukaryota; Metazoa; Chordata; Craniala; Vertebrata; Hyperoartia;
 OC Petromyzontiformes; Petromyzontidae; Petromyzon.
 NC NCB1_TaxID=7757;
 RP SEQUENCE FROM N.A.
 RP TISSUE-INTESTINE;
 RC MEDLINE-20022986; PubMed-10555286;
 RA Irwin D.M., Humer O., Youson J.H.;
 RT "Lamprey proglucagon and the origin of glucagon-like peptides."
 RL Mol. Biol. Evol. 16:1548-1557(1999).
 RN [2]
 RP SEQUENCE OF 43-71 AND 82-113.
 RC TISSUE-INTESTINE;
 RC MEDLINE-94010172; PubMed-8405897;
 RA Conlon J.M., Nielsen P.F., Youson J.H.;
 RT "Primary structures of glucagon and glucagon-like peptide isolated from the intestine of the parasitic phase lamprey Petromyzon marinus."
 RL Gen. Comp. Endocrinol. 91:96-104(1993).
 CC -1- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES THE BLOOD SUGAR LEVEL.
 CC -1- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
 CC EMBL: AF159707; AAF09186.1; -;
 DR HSSP: P01275; IBHO.
 DR InterPro: IPR000532; Glucagon.
 DR Pfam: PF00123; hormone2; 2.
 DR PRINTS: PR00275; GLUCAGON.
 DR SMART: SM00070; GLUCA; 2.
 DR PROSITE: PS00260; GLUCAGON; 2.
 KW Glucagon family; Hormone; Signal; Cleavage on pair of basic residues;
 KM Multigene family.
 FT STGNL 1 22 POTENTIAL.
 FT PEPTIDE 43 71 GLUCAGON.
 FT PEPTIDE 82 113 GLUCAGON-LIKE PEPTIDE 1.
 FT PEPTIDE 130 160 GLUCAGON-LIKE PEPTIDE 2.
 SO SEQUENCE 160 AA: 18042 MW: 9A52C530D5A74072 CRC64;

Query Match 70.8%; Score 102; DB 13; Length 160;
 Best Local Similarity 53.6%; Pred. No. 1e-07;
 Matches 15; Conservative 11; Mismatches 2; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSYLEGQAKEFIAMLV 28
 DB 82 HADGFTNDMTSYLAKARDFVSWLAR 109

RESULT 10
 ID 09DDE6 PRELIMINARY; PRT; 121 AA.
 AC 09DDE6;
 DT 01-MAR-2001 (Tremblrel. 16, Created)
 DT 01-MAR-2001 (Tremblrel. 16, Last sequence update)
 DE 01-DEC-2001 (Tremblrel. 19, Last annotation update)
 DE GLUCAGON POLYPEPTIDE.
 DE GCG OR GLU.
 OS Brachydanio rerio (zebrafish) (zebra danio).
 OC Eukaryota; Metazoa; Chordata; Craniala; Vertebrata; Euteleostomi;
 OC Actinopterygii; Neopterygii; Teleostei; Osteichthyes; Osteichthys;
 OC Cypriniformes; Cyprinidae; Danio.
 NC NCB1_TaxID=7955;
 RP SEQUENCE FROM N.A.
 RP MEDLINE-99425190; PubMed-10495291;
 RA Argenton F., Zecchin E., Bortolussi M.;
 RT "Early appearance of pancreatic hormone-expressing cells in the

RT zebrafish embryo.;
 RL Mech. Dev. 87:217-221(1999).
 DR EMBL: AJ133697; CAC20108.1; -
 DR HSSP: P01274; IGCN
 DR ZFIN: ZDB-GENE-010219-1; g9c9
 DR InterPro: IPR000532; Glucagon.
 DR Pfam: PF00123; hormone2; 2.
 DR PRINTS: PR00275; GLUCAGON.
 DR SMART: SM00070; GLUCA; 2.
 DR PROSITE: PS00260; GLUCAGON; 1.
 KW Polypeptide.
 FT CHAIN 49 79
 FT CHAIN 88 121
 FT CHAIN 121 13537 MW; A85385F690DA180F CRC64;
 SQ SEQUENCE 121 AA; 13537 MW; A85385F690DA180F CRC64;

Query Match 68.1%; Score 98; DB 13; Length 121;
 Best Local Similarity 73.1%; Pred. No. 3e-07;
 Matches 19; Conservative 4; Mismatches 3; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSSYLEGQAAKEFLAMLV 26
 DB 88 HAEGFTSDVSSYLEGQAAKEFLAMLV 113

RESULT 11

O9PRW9 PRELIMINARY; PRT: 62 AA.

AC O9PRW9; O9PRX0; O9PRW8; 13, Created)
 DT 01-MAY-2000 (TREMBLrel. 16, last sequence update)
 DT 01-MAR-2001 (TREMBLrel. 19, last annotation update)
 DE GLUCAGON PRECURSOR [CONTAINS: GLUCAGON-29; GLUCAGON-33; GLUCAGON-LIKE PEPTIDE] (FRAGMENTS).
 OS Scyliorhinus canicula (Spotted dogfish) (Spotted catshark).
 OC Eukaryota; Metazoa; Chordata; Vertebrata; Chondrichthyes;
 OC Elasmobranchii; Galeomorphi; Galeoidea; Carcharhiniformes;
 OC Scyliorhinidae; Scyliorhinus.
 NCBI_Taxid=7830;

CC -1- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
 CC HSSP: P01274; IGCN.
 DR InterPro: IPR000532; Glucagon.
 DR Pfam: PF00123; hormone2; 2.
 DR PRINTS: PR00275; GLUCAGON.
 DR SMART: SM00070; GLUCA; 2.
 DR PROSITE: PS00260; GLUCAGON; 2.
 KW Glucagon family; Hormone.
 FT PEPTIDE 1 29
 FT PEPTIDE 1 33
 FT NON_CONS 33 34
 FT PEPTIDE 34 62
 SQ SEQUENCE 62 AA; 7270 MW; C5F487C12C69C01 CRC64;

Query Match 66.0%; Score 95; DB 13; Length 62;
 Best Local Similarity 55.6%; Pred. No. 3.9e-07;
 Matches 15; Conservative 7; Mismatches 5; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSSYLEGQAAKEFLAMLV 27
 DB 1 HSEGTFTSDYSKYNRRRAKDFVQWL 27

RESULT 12

O9DGA3 PRELIMINARY; PRT: 96 AA.

AC O9DGA3;
 DT 01-MAR-2001 (TREMBLrel. 16, Created)
 DT 01-MAR-2001 (TREMBLrel. 16, last sequence update)
 DT 01-DEC-2001 (TREMBLrel. 19, last annotation update)
 DE PROGLUCAGON (FRAGMENT).
 OS Ambloplites rupestris.
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Actinopterygii; Neopterygii; Teleostei; Euteleostei; Neoteleostei;
 OC Acanthomorpha; Acanthopterygii; Percormorpha; Perciformes; Percoidae;
 OC Centrarchidae; Ambloplites.
 NCBI_Taxid=109273;

RP SEQUENCE FROM N.A.
 RA Al-Mahrouk A.A., Irwin D.M., Youson J.H.;
 RT "Rock Bass Proglucagon";
 RL Submitted (SEP-1999) to the EMBL/Genbank/DBJ databases.
 DR EMBL: AF190499; AAG16778.1; -

DR HSSP: P01274; IGCN.
 DR InterPro: IPR000532; Glucagon.
 DR Pfam: PF00123; hormone2; 2.
 DR PRINTS: PR00275; GLUCAGON.
 DR SMART: SM00070; GLUCA; 2.
 DR PROSITE: PS00260; GLUCAGON; UNKNOWN_1.
 FT NON_TER 1 1
 FT CHAIN 1 >29
 FT CHAIN 39 >70
 FT CHAIN 86 >96
 FT NON_TER 96 96
 SQ SEQUENCE 96 AA; 11225 MW; 6435033BDDCC00CE CRC64;

Query Match 61.1%; Score 88; DB 13; Length 96;
 Best Local Similarity 51.9%; Pred. No. 7.7e-06;
 Matches 14; Conservative 9; Mismatches 4; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSSYLEGQAAKEFLAMLV 27
 DB 1 HSGFTFTNDYNTYLEDROADFIRLWM 27

RESULT 13

O9PUR0 PRELIMINARY; PRT: 120 AA.

AC O9PUR0;
 DT 01-MAY-2000 (TREMBLrel. 13, Created)
 DT 01-MAY-2000 (TREMBLrel. 13, last sequence update)
 DT 01-DEC-2001 (TREMBLrel. 19, last annotation update)
 DE GLUCAGON II PRECURSOR [CONTAINS: GLUCAGON; GLUCAGON-LIKE PEPTIDE (GLP)].
 OS Petromyzon marinus (Sea lamprey).
 OC Eukaryota; Metazoa; Chordata; Vertebrata; Hyperoartia;
 OC Petromyzontiformes; Petromyzontidae; Petromyzon.
 NCBI_Taxid=7757;

RP SEQUENCE FROM N.A.
 RC TISSUE=INTESTINE;
 RX MEDLINE=20022986; PubMed=10555286;
 RA Irwin D.M., Hunter O., Youson J.H.;
 RT "Lamprey proglucagon and the origin of glucagon-like peptides";
 RL Mol. Biol. Evol. 16:1548-1557(1999).

CC -1- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES THE BLOOD SUGAR LEVEL.
 CC -1- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
 DR EMBL: AF159708; AAF09187.1; -

DR HSSP: P01275; IGH0.
 DR InterPro: IPR000532; Glucagon.
 DR Pfam: PF00123; hormone2; 2.
 DR PRINTS: PR00275; GLUCAGON.
 DR SMART: SM00070; GLUCA; 2.
 DR PROSITE: PS00260; GLUCAGON; 2.

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OM protein - protein search, using sw model

Run on: July 30, 2002, 08:46:19 ; Search time 10.32 Seconds
(without alignments)
105.053 Million cell updates/sec

Title: US-09-508-083-1
Perfect score: 144
Sequence: 1 HAEGETFTSDVSSYLEGQAKEFIAMLVK 28

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 105224 seqs, 38719550 residues
Total number of hits satisfying chosen parameters: 105224

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : SWISSprot_40:*

Pred. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed,
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	144	100.0	158	1	GLUC_PIG
2	144	100.0	180	1	GLUC_BOVIN
3	144	100.0	180	1	GLUC_CAVPO
4	144	100.0	180	1	GLUC_HUMAN
5	144	100.0	180	1	GLUC_MESAU
6	144	100.0	180	1	GLUC_MOUSE
7	144	100.0	180	1	GLUC_OCTDE
8	144	100.0	180	1	GLUC_RAT
9	132	91.7	151	1	GLUC_CHICK
10	118	81.9	30	1	GLUC_RANCA
11	118	81.9	103	1	GLUC_RANCA
12	112	77.8	122	1	GLUC_LOPAM
13	111	77.1	71	1	GLUC_LCTPU
14	110	76.4	78	1	GLUC_LESP
15	109	75.7	71	1	GLUC_PIRAME
16	105	72.9	121	1	GLUC_CARAV
17	104	72.2	68	1	GLUC_ONCKI
18	102.5	71.2	33	1	GLUC_URENI
19	97	67.4	29	1	GLUC_TORNA
20	97	67.4	96	1	GLUC_MYOSC
21	95	66.0	29	1	GLUC_SCYCA
22	93	64.6	29	1	GLUC_CALMI
23	93	64.6	124	1	GLUC_LOPAM
24	90	62.5	29	1	GLUC_DIDMA
25	90	62.5	29	1	GLUC_LAMFL
26	90	62.5	29	1	GLUC_RABIT
27	90	62.5	69	1	GLUC_CANPA
28	88	61.1	29	1	GLUC_ANAPL
29	88	61.1	36	1	GLUC_URENI
30	87	60.4	29	1	GLUC_CHIRB
31	86	59.7	29	1	GLUC_PLARE
32	83	57.6	75	1	GLUC_AMICA
33	83	57.6	87	1	EXE4_HELSU

Sequence
No. 5 and
Range 1-158

34	81	56.2	39	1	EXE3_HELHO	P20394 heloderma h
35	79	54.9	36	1	GLUC_HYDGO	P09682 hydrolysis
36	59	41.0	42	1	GIP_BOVIN	P09680 bos taurus
37	59	41.0	42	1	GIP_PIG	P01281 sus scrofa
38	59	41.0	72	1	VIP_BOVIN	P81401 bos taurus
39	59	41.0	72	1	VIP_PIG	P01284 sus scrofa
40	59	41.0	72	1	VIP_RABIT	P32649 oryctolagus
41	59	41.0	144	1	GIP_MOUSE	P48756 mus musculus
42	59	41.0	144	1	GIP_RAT	P06145 rattus norv
43	58	40.3	153	1	GIP_HUMAN	P09681 homo sapien
44	58	40.3	170	1	VIP_HUMAN	P01282 homo sapien
45	58	40.3	170	1	VIP_MOUSE	P32648 mus musculus

ALIGNMENTS

RESULT 1	ID	GLUC_PIG	STANDARD:	PRT:	158 AA.
AC	P01274:	21-JUL-1986 (Rel. 01, Created)			
DT	01-NOV-1990 (Rel. 16, Last sequence update)				
DT	16-OCT-2001 (Rel. 40, Last annotation update)				
DE	Glucagon precursor [Contains: Glucicentin; Glucicentin-related polypeptide				
DE	(GRP); Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like				
DE	peptide 2 (GLP2)] (Fragment).				
GN	CG.				
OS	Sus scrofa (Pig).				
OC	Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;				
OC	Mammalia; Eutheria; Cetartiodactyla; Suidae; Sus.				
OX	NCBI_TaxID=9823;				
RN	[1]				
RP	SEQUENCE OF 1-69.				
RX	MEDLINE=81248172; PubMed=6894800;				
RA	Thim L., Moody A.J.;				
RT	"The primary structure of porcine glucicentin (proglucagon).";				
RL	Regul. Pept. 2:139-150(1981).				
RN	[2]				
RP	SEQUENCE OF 1-69.				
RX	MEDLINE=82221776; PubMed=7045833;				
RA	Thim L., Moody A.J.;				
RT	"The amino acid sequence of porcine glucicentin.";				
RL	Peptides 2 suppl. 2:37-39(1981).				
RN	[3]				
RP	SEQUENCE OF 33-61.				
RA	Bromer W.W., Sinn L.G., Behrens O.K.;				
RT	"The amino acid sequence of glucagon. V. Location of amide groups,				
RL	acid degradation studies and summary of sequential evidence.";				
RN	J. Am. Chem. Soc. 79:2807-2810(1957).				
RL	[4]				
RP	SEQUENCE OF 78-107.				
RX	MEDLINE=89327238; PubMed=2753890;				
RA	Orskov C., Bersani M., Johnsen A.H., Hoejrup P., Holst J.J.;				
RT	"Complete sequences of glucagon-like peptide-1 from human and pig				
RL	small intestine.";				
RN	J. Biol. Chem. 264:12826-12829(1989).				
RN	[5]				
RP	SEQUENCE OF 111-158.				
RX	MEDLINE=88243712; PubMed=3379036;				
RA	Buhl T., Thim L., Korod H., Orskov C., Harling H., Holst J.J.;				
RT	"Naturally occurring products of proglucagon 111-160 in the porcine				
RL	and human small intestine.";				
RN	J. Biol. Chem. 263:8621-8624(1988).				
RN	[6]				
RP	X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).				
RX	MEDLINE=76051297; PubMed=171582;				
RA	Sasaki K., Dockertill S., Adamiak D.A., Tickle I.J., Blundell T.L.;				
RT	"X-ray analysis of glucagon and its relationship to receptor				
RL	binding.";				
RN	Nature 257:751-757(1975).				
CC	-1- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND				
	RAISES THE BLOOD SUGAR LEVEL.				

CC -1- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLOS
 CC HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
 CC CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
 CC -1- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
 CC IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
 CC -1- MISCELLANEOUS: X'S IN THE SEQUENCE WERE INCLUDED BY HOMOLOGY WITH
 CC HUMAN SEQUENCE.
 CC -1- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
 DR PIR: A01540; GCPC.
 DR PDB: 1GCM; 30-SEP-83.
 DR InterPro: IPR000532; Glucagon.
 DR Pfam: PF00123; hormone2; 3.
 DR SMART: SM00070; GLUCA; 3.
 DR Prosite: PS00260; GLUCAGON; 3.
 KW Glucagon family; Hormone; Cleavage on pair of basic residues;
 KW 3D-structure.
 FT NON_TER 1 1
 FT PEPTIDE 1 69 GLICENTIN.
 FT PEPTIDE 1 30 GLICENTIN-RELATED POLYPEPTIDE.
 FT PEPTIDE 33 61 GLUCAGON.
 FT PEPTIDE 78 107 GLUCAGON-LIKE PEPTIDE 1.
 FT PEPTIDE 126 158 GLUCAGON-LIKE PEPTIDE 2.
 FT HELIX 39 42
 FT TURN 43 43
 FT TURN 46 55
 FT HELIX 56 57
 SQ SEQUENCE 158 AA; 18212 MW; 28C6FCF257F33B2 CRC64;

Query Match 100.0%; Score 144; DB 1; Length 158;
 Best Local Similarity 100.0%; Pred. No. 5.7e-14;
 Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAAKEFIMLVK 28
 ID 78 HAEGFTSDVSSYLEGQAAKEFIMLVK 105

RESULT 2
 ID GLUC_BOVIN STANDARD; PRT; 180 AA.
 AC P01272;
 DT 21-JUL-1986 (Rel. 01, Created)
 DT 13-AUG-1987 (Rel. 05, Last sequence update)
 DT 16-OCT-2001 (Rel. 40, Last annotation update)
 DE Glucagon precursor [Contains: Glucocenthrin-related polypeptide (GRP)];
 DE Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like peptide 2
 DE (GLP2)].
 GN GCG.
 OS Bos taurus (Bovine).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
 OC Bovidae; Bovinae; Bos.
 OX NCBI_Taxid=9913;
 RN [1]
 RP SEQUENCE FROM N.A.
 RX MEDLINE=8329996; PubMed=6577439;
 RA Lopez L.C., Frazier M.L., Su C.-J., Kumar A., Saunders G.F.;
 RT "Mamalian pancreatic preproglucagon contains three glucagon-related
 RT peptides";
 RL Proc. Natl. Acad. Sci. U.S.A. 80:5485-5489(1983).
 RN [2]
 RP SEQUENCE OF 53-81.
 RX MEDLINE=71166445; PubMed=5102927;
 RA Bromer W.M., Boucher M.E., Koffenberger J.E. Jr.;
 RT "Amino acid sequence of bovine glucagon";
 RL J. Biol. Chem. 246:2822-2827(1971).
 CC -1- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND
 CC RAISES THE BLOOD SUGAR LEVEL.
 CC -1- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLOS
 CC HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
 CC CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
 CC -1- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS

CC -1- IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
 CC -1- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
 CC -----
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 CC or send an email to license@sib-sib.ch).

CC EMBL: K00107; AAA30538.1; -
 DR PIR: A01538; GCBO.
 DR HSSP: P01274; 1GCM.
 DR InterPro: IPR000532; Glucagon.
 DR Pfam: PF00123; hormone2; 3.
 DR PRINTS: PR00275; GLUCAGON.
 DR SMART: SM00070; GLUCA; 3.
 DR Prosite: PS00260; GLUCAGON; 4.
 KW Glucagon family; Hormone; Cleavage on pair of basic residues; Signal.
 FT SIGNAL 1 20
 FT PEPTIDE 21 50 GLICENTIN-RELATED POLYPEPTIDE.
 FT PEPTIDE 53 81 GLUCAGON.
 FT PEPTIDE 92 128 GLUCAGON-LIKE PEPTIDE 1.
 FT PEPTIDE 146 178 GLUCAGON-LIKE PEPTIDE 2.
 SQ SEQUENCE 180 AA; 20944 MW; 8D9BA4F05B9F15FF CRC64;

Query Match 100.0%; Score 144; DB 1; Length 180;
 Best Local Similarity 100.0%; Pred. No. 6.6e-14;
 Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAAKEFIMLVK 28
 ID 98 HAEGFTSDVSSYLEGQAAKEFIMLVK 125

RESULT 3
 ID GLUC_CAVPO STANDARD; PRT; 180 AA.
 AC P05110;
 DT 13-AUG-1987 (Rel. 05, Created)
 DT 13-AUG-1987 (Rel. 05, Last sequence update)
 DT 16-OCT-2001 (Rel. 40, Last annotation update)
 DE Glucagon precursor [Contains: Glucocenthrin-related polypeptide (GRP)];
 DE Glucagon; Glucagon-37 (Oxynomodulin); Glucagon-like peptide 1 (GLP1);
 DE Glucagon-like peptide 2 (GLP2)].
 GN GCG.
 OS Cavia porcellus (Guinea pig).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Hystriognathi; Caviidae; Cavia.
 OX NCBI_Taxid=10141;
 RN [1]
 RP SEQUENCE FROM N.A.
 RX MEDLINE=66248118; PubMed=3755107;
 RA Saino S., Welsh M., Bell G.I., Chan S.J., Steiner D.F.;
 RT "Mutations in the guinea pig preproglucagon gene are restricted to a
 RT specific portion of the prohormone sequence";
 RL FEBS Lett. 203:25-30(1986).
 RN [2]
 RP SEQUENCE OF 53-81.
 RX MEDLINE=86165412; PubMed=3956884;
 RA Huang C.G., Eng J., Pan Y.-C.E., Hulmes J.D., Yalow R.S.;
 RT "Guinea pig glucagon differs from other mammalian glucagons";
 RL Diabetes 35:508-512(1986).
 RN [3]
 RP PARTIAL SEQUENCE OF 53-89.
 RX MEDLINE=86017849; PubMed=4048553;
 RA Conlon J.M., Hansen H.F., Schwartz T.W.;
 RT "Primary structure of glucagon and a partial sequence of
 RT oxynomodulin (glucagon-37) from the guinea pig";
 RL Regul. Pept. 11:309-320(1985).
 CC -1- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND

RAISES THE BLOOD SUGAR LEVEL.
-1- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLOS
HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
-1- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
-1- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.

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EMBL; D00014; BAA0010.1; -.
DR PIR: A24856; GCCP.
DR HSSP: P01274; 1GCG.
DR InterPro: IPR000532; Glucagon.
DR Pfam: PF00123; hormone2; 3.
DR PRINTS: PR00275; GLUCAGON.
DR SMART: SM00070; GLUCA; 3.
DR PROSITE: PS00260; GLUCAGON; 4.
KW Glucagon family; Hormone; Cleavage on pair of basic residues; signal.
FT SIGNAL 1 20
FT PEPTIDE 21 50 GLICENTIN-RELATED POLYPEPTIDE.
FT PEPTIDE 53 81 GLUCAGON.
FT PEPTIDE 92 128 GLUCAGON-37.
FT PEPTIDE 146 178 GLUCAGON-LIKE PEPTIDE 1.
FT PEPTIDE 180 20972 MW; 702FBI81161D2776 CXC64.
SQ SEQUENCE 180 AA; 20972 MW; 702FBI81161D2776 CXC64.

Query Match 100.0%; Score 144; DB 1; Length 180;
Best Local Similarity 100.0%; Pred. No. 6.6e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSYLEGQAKERFIAVLK 28
DB 98 HAEGFTSDVSYLEGQAKERFIAVLK 125

RESULT 4
GLUC_HUMAN STANDARD: PRT; 180 AA.
AC P01275;
DT 21-JUL-1986 (Rel. 01, Created)
DT 13-AUG-1987 (Rel. 05, Last sequence update)
DT 16-OCT-2001 (Rel. 40, Last annotation update)
DE Glucagon precursor [Contains: Glucocentin-related polypeptide (GRPP);
Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like peptide 2
(GLP2)].
DE (GLP2)].
GN GCG.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.
OX NCBI_TaxID=9606;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=88330860; PubMed=2901414;
RA Drucker D.J., Asa S.;
RT "Glucagon gene expression in vertebrate brain.";
RL J. Biol. Chem. 263:13475-13478(1988).
RN [2]
RP SEQUENCE FROM N.A.
RX MEDLINE=86259053; PubMed=3725587;
RA White J.W., Saunders G.F.;
RT "Structure of the human glucagon gene.";
RL Nucleic Acids Res. 14:4719-4730(1986).
RN [3]
RP SEQUENCE FROM N.A.
RC TISSUE=Liver;

MEDLINE=883271477; PubMed=6877358;
RA Bell G.I., Sanchez-Pescador R., Laybourn P.J., Najarian R.C.;
RT "Exon duplication and divergence in the human preproglucagon gene.";
RL Nature 304:368-371(1983).
RN [4]
RP SEQUENCE OF 53-81.
RA Thomsen J., Kristiansen K., Brunfeldt K., Sundby F.;
RT "The amino acid sequence of human glucagon.";
RL FEBS Lett. 21:315-319(1972).
RN [5]
RP SEQUENCE OF 98-127.
RX MEDLINE=89327238; PubMed=2753890;
RA Orskov C., Bersani M., Johnsen A.H., Hostrup P., Holst J.J.;
RT "Complete sequences of glucagon-like peptide-1 from human and pig
small intestine.";
RL J. Biol. Chem. 264:12826-12829(1989).
RN [6]
RP X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS) OF 53-81.
RX MEDLINE=98334683; PubMed=9667960;
RA Sturm N.S., Lin Y., Burley S.K., Kristiansky J.L., Ahn J.M.,
RA Azizeh B.Y., Trivedi D., Hruby V.J.;
RT "Structure-function studies on positions 17, 18, and 21 replacement
analogues of glucagon: the importance of charged residues and salt
bridges in glucagon biological activity.";
RL J. Med. Chem. 41:2693-2700(1998).
CC -1- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND
RAISES THE BLOOD SUGAR LEVEL.
CC -1- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLOS
HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
CC -1- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC -1- PHARMACEUTICAL: Available under the names glucagon (Eli Lilly) and
glucagen or glucagon Novo Nordisk (Novo Nordisk). Used to treat
severe hypoglycemia in insulin-dependent diabetics.
CC -1- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC -1- DATABASE: NAME=Glucagon at EMBL;
NOTE=Clinical information on Eli Lilly glucagon products:
WWW="http://www.lillydiabetes.com/products/Patientinfo.cfm".

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EMBL; J04040; AAA52567.1; -.
DR EMBL; X03991; CAA27627.1; -.
DR EMBL; V01515; CAA24759.1; -.
DR PIR: A24377; GCHD.
DR PIR: S23309; S23309.
DR PDB: 1BH0; 1B-NV-98.
DR MIM: 138030; -.
DR InterPro: IPR000532; Glucagon.
DR Pfam: PF00123; hormone2; 3.
DR PRINTS: PR00275; GLUCAGON.
DR SMART: SM00070; GLUCA; 3.
DR PROSITE: PS00260; GLUCAGON; 4.
KW Glucagon family; Hormone; Cleavage on pair of basic residues; signal;
Pharmaceutical; 3D-structure.
FT SIGNAL 1 20
FT PEPTIDE 21 50 GLICENTIN-RELATED POLYPEPTIDE.
FT PEPTIDE 53 81 GLUCAGON.
FT PEPTIDE 98 127 GLUCAGON-LIKE PEPTIDE 1.
FT PEPTIDE 146 178 GLUCAGON-LIKE PEPTIDE 2.
FT CONFLICT 82 82 K -> N (IN REF. 3).
SQ SEQUENCE 180 AA; 20909 MW; 7A99EBC629B2862C CXC64;

Query Match 100.0%; Score 144; DB 1; Length 180;

Best Local Similarity 100.0%; Pred. No. 6,6e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGAAKEFTIAMLVK 28
DB 98 HAEGFTSDVSSYLEGAAKEFTIAMLVK 125

RESULT 5

GLUC_MESAU STANDARD; PRT; 180 AA.

AC P01273;
DT 21-JUL-1986 (Rel. 01, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 16-OCT-2001 (Rel. 40, Last annotation update)
DE Glucagon precursor [Contains: Glucocorticoid-related polypeptide (GRP);
DE Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like peptide 2
DE (GLP2)].
GN GCG.
OS Mesocricetus auratus (Golden hamster).
OC Eukaryota; Metazoa; Chordata; Cranialata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
OC Mesocricetus.
NCBI_TaxID=10036;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=83167563; PubMed=6835407;
RA Bell G.I., Sauter R.F., Mullenbach G.T.;
RT "Hamster proglucagon contains the sequence of glucagon and two
RT related peptides."
RL Nature 302:716-718(1983).
RN [2]
RP REVISIONS TO 12-15.
RA Bell G.I.;
RL Submitted (XXX-1985) to the EMBL/GenBank/DBJ databases.
CC -1- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND
CC RAISES THE BLOOD SUGAR LEVEL.
CC -1- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLOS
CC HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
CC CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
CC -1- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC -1- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC -----
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CC -----
DR EMBL: J00059; AAA37074.1; -
DR PIR: A01539; GCHV.
DR HSSP: P01274; IGCN.
DR InterPro: IPR000532; Glucagon.
DR Pfam: PF00123; hormone2; 3.
DR PRINTS: PR00275; GLUCAGON.
DR SMART: SM00070; GLUCA; 3.
DR PROSITE: PS00260; GLUCAGON; 4.
KW Glucagon family; Hormone; Cleavage on pair of basic residues; Signal.
FT SIGNAL 1 20
FT PEPTIDE 21 50 GLUCENTIN-RELATED POLYPEPTIDE.
FT PEPTIDE 53 81 GLUCAGON.
FT PEPTIDE 92 128 GLUCAGON-LIKE PEPTIDE 1.
FT PEPTIDE 146 178 GLUCAGON-LIKE PEPTIDE 2.
SQ SEQUENCE 180 AA; 20954 MW; 02791B49D7AAD48 CRC64;

Query Match 100.0%; Score 144; DB 1; Length 180;
Best Local Similarity 100.0%; Pred. No. 6,6e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGAAKEFTIAMLVK 28
DB 98 HAEGFTSDVSSYLEGAAKEFTIAMLVK 125

RESULT 6

GLUC_MOUSE STANDARD; PRT; 180 AA.

AC P55095;
DT 01-OCT-1996 (Rel. 34, Created)
DT 01-OCT-1996 (Rel. 34, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Glucagon precursor [Contains: Glucocorticoid-related polypeptide (GRP);
DE Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like peptide 2
DE (GLP2)].
GN GCG.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Cranialata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
NCBI_TaxID=10090;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Pancreatic islets;
RX MEDLINE=95247722; PubMed=7730317;
RA Rothenberg M.E., Ellertson C.D., Klein K., Zhou Y., Linberg I.,
RA McDonald J.K., Mackin R.B., Noe B.D.;
RT "Processing of mouse proglucagon by recombinant prohormone convertase
RT 1 and immunopurified prohormone convertase 2 in vitro."
RL J. Biol. Chem. 270:10136-10146(1995).
RN [2]
RP SEQUENCE FROM N.A.
RA Shamsadin R., Knebel W.;
RT "Mouse glucagon full length cDNA."
RL Submitted (JUN-2000) to the EMBL/GenBank/DBJ databases.
CC -1- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND
CC RAISES THE BLOOD SUGAR LEVEL.
CC -1- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLOS
CC HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
CC CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
CC -1- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC -1- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC -----
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CC use by non-profit institutions as long as its content is in no way
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CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL: Z46845; CAAB6902.1; -
DR EMBL: AF276754; AAK96898.1; -
DR HSSP: P01274; IGCN.
DR MCD: MGT:95674; GCG.
DR InterPro: IPR000532; Glucagon.
DR Pfam: PF00123; hormone2; 3.
DR PRINTS: PR00275; GLUCAGON.
DR SMART: SM00070; GLUCA; 3.
DR PROSITE: PS00260; GLUCAGON; 4.
KW Glucagon family; Hormone; Cleavage on pair of basic residues; Signal.
FT SIGNAL 1 20
FT PEPTIDE 21 50 GLUCENTIN-RELATED POLYPEPTIDE.
FT PEPTIDE 53 81 GLUCAGON.
FT PEPTIDE 92 128 GLUCAGON-LIKE PEPTIDE 1.
FT PEPTIDE 146 178 GLUCAGON-LIKE PEPTIDE 2.
SQ SEQUENCE 180 AA; 20906 MW; 595AA6DBD9A58950 CRC64;

Query Match 100.0%; Score 144; DB 1; Length 180;
Best Local Similarity 100.0%; Pred. No. 6,6e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSSYSLBGAQAKKEFIAMLVK 28
|||||
DB 98 HAEGFTSDVSSYSLBGAQAKKEFIAMLVK 125

RESULT 7
GLUC_OCTDE STANDARD: PRT: 180 AA.
AC P22890:
DT 01-AUG-1991 (Rel. 19, Created)
DT 01-AUG-1991 (Rel. 19, Last sequence update)
DT 16-OCT-2001 (Rel. 40, Last annotation update)
DE Glucagon precursor [Contains: Glucocin-related polypeptide (GRP);
Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like peptide 2
(GLP2)].
DE (GLP2)].
GN GCG.
OS Octodon degus (Degu).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Hystriocognathi; Octodontidae; Octodon.
OX NCBI_TaxID=10160;
RV [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=91153952; PubMed=2293024;
RA Nishi M., Steiner D.F.;
RT "Cloning of complementary DNAs encoding islet amyloid polypeptide,
insulin, and glucagon precursors from a New World rodent, the degu,
Octodon degus".
RT Mol. Endocrinol. 4:1192-1198(1990).
RL -1- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND
RAISES THE BLOOD SUGAR LEVEL.
CC -1- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLUS
HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
CC -1- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC -1- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC -----
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CC -----
DR EMBL: M57688; AAA40588.1; -
DR PIR: C36118; GCRTDU.
DR HSSE: P01274; IGCN.
DR InterPro: IPR000532; Glucagon.
DR Pfam: PF00123; hormone2; 3.
DR PRINTS: PR00275; GLUCAGON.
DR SMART: SM00070; GLUCA; 3.
DR PROSITE: PS00260; GLUCAGON; 4.
KW Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
KW Amidation.
FT SIGNAL 1 20
FT PEPTIDE 21 50 GLUCENTIN-RELATED POLYPEPTIDE.
FT PEPTIDE 53 81
FT PEPTIDE 92 127 GLUCAGON-LIKE PEPTIDE 1.
FT PEPTIDE 146 178 GLUCAGON-LIKE PEPTIDE 2.
FT MOD_RES 127 127 AMIDATION (G-128 PROVIDE AMIDE GROUP).
SQ SEQUENCE 180 AA; 21165 MW; 6E8836160A9A3051 CRC64;

Query Match 100.0%; Score 144; DB 1; Length 180;
Best Local Similarity 100.0%; Pred. No. 6.6e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSSYSLBGAQAKKEFIAMLVK 28
|||||
DB 98 HAEGFTSDVSSYSLBGAQAKKEFIAMLVK 125

RESULT 8
GLUC_RAT -
ID GLUC_RAT STANDARD: PRT: 180 AA.
AC P06883;
DT 01-JAN-1988 (Rel. 06, Created)
DT 01-JAN-1988 (Rel. 06, Last sequence update)
DT 16-OCT-2001 (Rel. 40, Last annotation update)
DE Glucagon precursor [Contains: Glucocin-related polypeptide (GRP);
Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like peptide 2
(GLP2)].
DE (GLP2)].
GN GCG.
OS Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
OX NCBI_TaxID=10116;
RV [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=85054853; PubMed=6094539;
RA Heinrich G., Gros P., Habener J.F.;
RT "Glucagon gene sequence. Four of six exons encode separate functional
domains of rat pre-proglucagon".
RT J. Biol. Chem. 259:14082-14087(1984).
RL [2]
RN SEQUENCE FROM N.A.
RP MEDLINE=85051023; PubMed=6548696;
RX Heinrich G., Gros P., Lund P.K., Bentley R.C., Habener J.F.;
RA "Pre-proglucagon messenger ribonucleic acid: nucleotide and encoded
amino acid sequences of the rat pancreatic complementary
deoxyribonucleic acid".
RT Endocrinology 115:2176-2181(1984).
RL [3]
RN SEQUENCE FROM N.A.
RP MEDLINE=86304324; PubMed=3528148;
RX Mojsov S., Heinrich G., Wilson I.B., Ravazzola M., Orci L.,
RA Habener J.F.;
RT "Preproglucagon gene expression in pancreas and intestine diversifies
at the level of post-translational processing".
RL J. Biol. Chem. 261:11880-11889(1986).
CC -1- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND
RAISES THE BLOOD SUGAR LEVEL.
CC -1- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLUS
HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
CC -1- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC -1- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC -----
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CC -----
DR EMBL: K02813; AAA41235.1; -
DR EMBL: K02809; AAA41235.1; JOINED.
DR EMBL: K02810; AAA41235.1; JOINED.
DR EMBL: K02811; AAA41235.1; JOINED.
DR EMBL: K02812; AAA41235.1; JOINED.
DR PIR: A22655; GCRT.
DR PIR: A44198; A44198.
DR HSSE: P01274; IGCN.
DR InterPro: IPR000532; Glucagon.
DR Pfam: PF00123; hormone2; 3.
DR PRINTS: PR00275; GLUCAGON.
DR SMART: SM00070; GLUCA; 3.
DR PROSITE: PS00260; GLUCAGON; 4.
KW Glucagon family; Hormone; Cleavage on pair of basic residues; Signal.
FT SIGNAL 1 20
FT PEPTIDE 21 50 GLUCENTIN-RELATED POLYPEPTIDE.
FT PEPTIDE 53 81
FT PEPTIDE 92 128 GLUCAGON-LIKE PEPTIDE 1.

FT PEPTIDE 146 178 GLUCAGON-LIKE PEPTIDE 2.
SQ SEQUENCE 180 AA; 20846 MW; 76931409D03C7978 CRC64;

Query Match 100.0%; Score 144; DB 1; Length 180;
Best Local Similarity 100.0%; Pred. No. 6, 6e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSSYLEGQAAKEFIAMLV 28
|||||
Db 98 HAEGFTSDVSSYLEGQAAKEFIAMLV 125

RESULT 9
ID GLUC_CHICK STANDARD; PRT: 151 AA.
AC P01277;
DT 21-JUL-1986 (Rel. 01, Created)
DT 01-AUG-1990 (Rel. 15, Last sequence update)
DT 15-JUL-1999 (Rel. 38, Last annotation update)
DE Glucagon precursor.
OS Gallus gallus (Chicken), and
OS Meleagris gallopavo (Common turkey).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
OC Gallus.
OX NCBI_TaxID=9031, 9103;
RN [1]
RP SEQUENCE FROM N.A.
RC SPECIES-Chicken; TISSUE-Pancreas;
RX MEDLINE=90249492; PubMed=2338135;
RA Hasegawa S., Terazono K., Nakada T., Yamamoto H.,
RA Okamoto H.;
RT "Nucleotide sequence determination of chicken glucagon precursor
cDNA. Chicken preproglucagon does not contain glucagon-like peptide
II.";
RL FEBS Lett. 264:117-120(1990).
RN [2]
RP SEQUENCE OF 55-83.
RC SPECIES-Chicken;
RX MEDLINE=76069271; PubMed=1194290;
RA Pollock H.G., Kimmel J.R.;
RT "Chicken glucagon. Isolation and amino acid sequence studies.";
RL J. Biol. Chem. 250:9377-9380(1975).
RN [3]
RP COMPOSITION, AND SEQUENCE OF 55-83.
RC SPECIES-M.gallopavo;
RX MEDLINE=73074118; PubMed=4645932;
RA Markusen J., Frandsen E.K., Heding L.G., Sundby F.;
RT "Turkey glucagon: crystallization, amino acid composition and
immunology.";
RL Horm. Metab. Res. 4:360-363(1972).
CC -1- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
THE BLOOD SUGAR LEVEL.
CC -1- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC -1- MISCELLANEOUS: THE COMPOSITION OF TURKEY GLUCAGON APPEARS TO BE
IDENTICAL WITH CHICKEN.
CC -1- MISCELLANEOUS: CHICKEN PREPROGLUCAGON DOES NOT CONTAIN
GLUCAGON-LIKE PEPTIDE II.
CC -1- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC -----
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CC EMBL: Y07539; CAA68827.1; -
DR PIR: S09992; GCCH.
DR PIR: A91740; A91740.

DR HSSP; P01274; IGCN.
DR InterPro; IPR000532; Glucagon.
DR Pfam; PF00123; hormone2; 2.
DR PRINTS; PR00275; GLUCAGON.
DR SMART; SM00070; GLUCA; 2.
DR PROSITE; PS00260; GLUCAGON; 3.
KW Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
KW Amidation.
FT SIGNAL 1 22
FT CHAIN 23 151 PROGLUCAGON.
FT PEPTIDE 55 83 GLUCAGON.
FT PROPEP 86 118
FT PEPTIDE 118 147
FT MOD_RES 147 147 GLUCAGON-LIKE PEPTIDE.
SQ SEQUENCE 151 AA; 17520 MW; B6C0D87536C0A8B5 CRC64;
AMIDATION (G-148 PROVIDE AMIDE GROUP).

OY 1 HAEGFTSDVSSYLEGQAAKEFIAMLV 27
|||||
Db 118 HAEGFTSDITSYLEGQAAKEFIAMLV 144

RESULT 10
ID GLUC_ANGAN STANDARD; PRT: 30 AA.
AC P41521;
DT 01-NOV-1995 (Rel. 32, Created)
DT 01-NOV-1995 (Rel. 32, Last sequence update)
DT 01-NOV-1995 (Rel. 32, Last annotation update)
DE Glucagon-like peptide (GLP).
OS Anguilla anguilla (European freshwater eel), and
OS Anguilla rostrata (American eel).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Actinopterygii; Neopterygii; Teleostei; Anguilliformes; Anguillidae;
OC Anguillidae; Anguilla.
OX NCBI_TaxID=7936, 7938;
RN [1]
RP SEQUENCE.
RC TISSUE-Pancreas;
RX MEDLINE=91340068; PubMed=1874385;
RA Colton J.M., Andrews P.C., Thim L., Moon T.W.;
RT "The primary structure of glucagon-like peptide but not insulin has
been conserved between the American eel, Anguilla rostrata and the
European eel, Anguilla anguilla.";
RL Gen. Comp. Endocrinol. 82:23-32(1991).
CC -1- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC PIR: B61125; B61125.
DR PIR: C61125; C61125.
DR HSSP; P01275; IBH0.
DR InterPro; IPR000532; Glucagon.
DR Pfam; PF00123; hormone2; 1.
DR PRINTS; PR00275; GLUCAGON.
DR SMART; SM00070; GLUCA; 1.
DR PROSITE; PS00260; GLUCAGON; 1.
KW Glucagon family; Amidation.
FT MOD_RES 30 30
SQ SEQUENCE 30 AA; 3376 MW; 592DA5EABD6E49D0 CRC64;

Query Match 81.9%; Score 118; DB 1; Length 30;
Best Local Similarity 80.8%; Pred. No. 6, 4e-11;
Matches 21; Conservative 4; Mismatches 1; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSSYLEGQAAKEFIAMLV 26
|||||
Db 1 HAEGFTSDVSSYLEGQAAKEFIAMLV 26

RESULT 11

ID	GLUC_RANCA	STANDARD:	PRT:	103 AA.
AC	P15438; P15439; P15440;			
DT	01-APR-1990 (Rel. 14, Created)			
DT	01-JUL-1993 (Rel. 26, Last sequence update)			
DT	01-JUL-1993 (Rel. 26, Last annotation update)			
DE	Glucagon precursor (Fragments).			
OS	Rana catesbeiana (Bull frog).			
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrate; Euteleostomi;			
OC	Amphibia; Batrachia; Anura; Neobatrachia; Ranoidae; Ranae.			
OX	NCBI_TaxID=8400;			
RN	[1]			
RP	SEQUENCE.			
RC	TISSUE=Pancreas;			
KX	MEDLINE=88257102; PubMed=3260236;			
RA	Pollock H.G., Hamilton J.W., Rouse J.B., Ebner K.E., Rawliff A.B.;			
RT	"Isolation of peptide hormones from the pancreas of the bullfrog			
RT	(<i>Rana catesbeiana</i>). Amino acid sequences of pancreatic polypeptide,			
RL	oxytomodulin, and two glucagon-like peptides.";			
JL	J. Biol. Chem. 263:9746-9751(1988).			
CC	-1 FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES			
CC	THE BLOOD SUGAR LEVEL.			
CC	-1 INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS			
CC	IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.			
CC	-1 MISCELLANEOUS: X'S IN THE SEQUENCE WERE INCLUDED BY HOMOLOG WITH			
CC	OTHER SPECIES SEQUENCES.			
CC	-1 SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.			
DR	PIR; B28091; GCEGB.			
DR	HSSP; P01274; IGCN.			
DR	InterPro: IPRO00532; Glucagon.			
DR	pfam: PF00123; hormone2; 3.			
DR	PRINTS; PRO0275; GLUCAGON.			
DR	SMART; SM00070; GLUCA; 3.			
DR	PROSITE; PS00260; GLUCAGON; 3.			
KW	Glucagon family; Hormone.			
FT	PEPTIDE 1 29 GLUCAGON.			
FT	PEPTIDE 1 36 GLUCAGON-36 (OXYNOMODULIN).			
FT	NON_CONS 39 70 GLUCAGON-LIKE PEPTIDE 1.			
FT	PEPTIDE 71 71			
SQ	SEQUENCE 103 AA; 11719 MW; 316287B7BAE1C8F7 CRC64;			
Oy	1 HAEGFTSDVSYLEGOAAKEFIATLVK 28			
Dd	11: : : : :			
Oy	39 HADGFTSDMSYLEEKAKFEVDWLK 66			
RESULT 12				
GLU2_LOPAM				
ID	GLU2_LOPAM	STANDARD:	PRT:	122 AA.
AC	P04092;			
DT	01-NOV-1986 (Rel. 03, Created)			
DT	01-NOV-1986 (Rel. 03, Last sequence update)			
DT	16-OCT-2001 (Rel. 40, Last annotation update)			
DE	Glucagon II precursor [Contains: Gli-centin-related polypeptide (GRP)];			
DE	Glucagon II; Glucagon-like peptide II].			
OS	Lophius americanus (American goosefish) .			
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;			
OC	Acanthopterygii; Neopterygii; Teleostei; Euteleostei; Neoteleostei;			
OC	Acanthomorphi; Paracanthopterygii; Lophiformes; Lophidae; Lophius.			
OX	NCBI_TaxID=8073;			
RN	[1]			
RP	SEQUENCE FROM N.A.			
RA	MEDLINE=83135785; PubMed=6338015;			
RT	Lund P.K., Goodman R.H., Montminy M.R., Dee P.C., Habener J.F.;			
RT	"Angletfish islet pre-proglucagon II. Nucleotide and corresponding			
RT	amino acid sequence of the cdna."			
RL	J. Biol. Chem. 258:3280-3284(1983).			

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RN  PROCESSING.
RP  MEDLINE=86286913; PubMed=3526301;
RA  Noe B.D., Andrews P.C.;
RT  "Specific glucagon-related peptides isolated from anglerfish islets
RT  are metabolic cleavage products of (pre)proglucagon-II.";
RL  Peptides 7:331-339(1986).
CC  -1- FUNCTION: PROMOTES HYDROLYSIS OF GLUCOSEN AND LIPIDS, AND RAISES
CC  THE BLOOD SUGAR LEVEL.
CC  -1- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC  IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC  -1- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC  -----
CC  This SWISS-PROT entry is copyright. It is produced through a collaboration
CC  between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC  the European Bioinformatics Institute. There are no restrictions on its
CC  use by non-profit institutions as long as its content is in no way
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CC  entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC  or send an email to license@isb-sib.ch).
CC  -----
DR  EMBL; V00632; CAA23905.1; -.
DR  PIR; A05150; GCAE2.
DR  HSSP; P01274; IGCN.
DR  InterPro; IPR000532; Glucagon.
DR  Pfam; PF00123; hormone2; 2.
DR  PRINTS; PR00275; GLUCAGON.
DR  SMART; SM00070; GLUCA; 2.
DR  PROSITE; PS00260; GLUCAGON; 2.
KW  Glucagon family; Hormone; Cleavage on pair of basic residues; Signal.
FT  SIGNAL 1 21
FT  PEPTIDE 1 49 GLUCENTIN-RELATED POLYPEPTIDE.
FT  PEPTIDE 52 80 GLUCAGON II.
FT  PROPEP 83 86
FT  PEPTIDE 89 119
SQ  SEQUENCE 122 AA; 14171 MW; 5140AC47EF915519 CRC64;

Query Match 77.8%; Score 112; DB 1; Length 122;
Best Local Similarity 73.1%; Pred. NO. 2e-09;
Matches 19; Conservative 6; Mismatches 1; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSSYLEGQAAKEFIAVL 26
    |||:|||||:||||:||||:|
DB 89 YADGYTSDVSSYLLDQAAKDFVSWL 114

RESULT 13:
GLUC_ICTPU STANDARD; PRT; 71 AA.
AC P04093;
DT 01-NOV-1986 (Rel. 03, Created)
DT 01-MAR-1989 (Rel. 10, Last sequence update)
DT 01-NOV-1990 (Rel. 16, Last annotation update)
DE Glucagon precursor (Fragment).
OS Ictalurus punctatus (Channel catfish).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Actinopterygii; Neopterygii; Teleostei; Euteleostei; Ostariophysi;
OC Siluriformes; Ictaluridae; Ictalurus.
OX NCBI_TaxID=998;
RN [1]
RP SEQUENCE.
RC TISSUE=Pancreas;
RX MEDLINE=87156787; PubMed=3030323;
RA Hoosein N.M., Mahrenholz A.M., Andrews P.C., Gurd R.S.;
RT "Biological activities of catfish glucagon and glucagon-like
RT peptide.".
RL Biochem. Biophys. Res. Commun. 143:87-92(1987).
RN [2]
RP SEQUENCE.
RC TISSUE=Pancreas;
RX MEDLINE=85157536; PubMed=3838546;
RA Andrews P.C., Ronner P.;

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RT Isolation and structures of glucagon and glucagon-like peptide from
 RT catfish pancreas.
 RL J. Biol. Chem. 260:3910-3914(1985).
 CC -1- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
 CC THE BLOOD SUGAR LEVEL.
 CC -1- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
 CC IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
 CC -1- MISCELLANEOUS: X'S IN THE SEQUENCE WERE INCLUDED BY HOMOLOGY WITH
 CC AMERICAN GOOSEFISH SEQUENCES.
 CC -1- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
 DR PIR: A05166; GCICN.
 DR HSSP: P01274; IGCN.
 DR InterPro: IPR000532; Glucagon.
 DR Pfam: PF00123; hormone2; 2.
 DR SMART: SM00070; GLUCA; 2.
 DR PROSITE: PS00260; GLUCAGON; 2.
 KW Glucagon family; Hormone.
 FT NON_TER 1 1
 FT PEPTIDE 1 29 GLUCAGON.
 FT PEPTIDE 38 71 GLUCAGON-LIKE PEPTIDE.
 FT CONFLICT 53 53 E -> D (IN REF. 2).
 FT NON_TER 71 71
 SO SEQUENCE 71 AA; 8173 MW; 24688E79AD981A8F CRC64;

Query Match 77.1%; Score 111; DB 1; Length 71;
 Best Local Similarity 76.9%; Pred. No. 1.6e-09;
 Matches 20; Conservative 4; Mismatches 2; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSYLEGQAKKEFIAML 26
 ||:|||||:|||||:|||||:|
 DB 38 HADGTYSVSYLQDQAKKEFIAML 63

RESULT 14

GLUC_LEPSP STANDARD; PRT; 78 AA.
 AC P09366;
 DT 01-MAR-1989 (Rel. 10, Created)
 DT 01-NOV-1990 (Rel. 16, Last sequence update)
 DT 16-OCT-2001 (Rel. 40, Last annotation update)
 DE Glucagon precursor [Contains: Glucagon; Glucagon-36 (Oxyntomodulin);
 DE Glucagon-like peptide] (Fragment).
 OS Lepisosteus spatula (Alligator gar) (Atractosteus spatula).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Actinopterygii; Neopterygii; Semionotiformes; Lepisosteidae;
 OC Lepisosteus.
 OC NCBI_Taxid=7917;
 RN [1]
 RP SEQUENCE OF 1-36 AND 45-78.
 RC TISSUE=Pancreas;
 RX MEDLINE=88196798; PubMed=3282974;
 RA Pollock H.G., Kimmel J.R., Edner K.E., Hamilton J.W., Rouse J.B.,
 RA Lance V., Rawlitch A.B.;
 RT "Isolation of alligator gar (Lepisosteus spatula) glucagon,
 RT oxyntomodulin, and glucagon-like peptide: amino acid sequences of
 RT oxyntomodulin and glucagon-like peptide."
 RT Gen. Comp. Endocrinol. 69:133-140(1987).
 RL Gen. Comp. Endocrinol. 69:133-140(1987).
 RN [2]
 RP PRELIMINARY SEQUENCE OF 1-29.
 RC TISSUE=Pancreas;
 RX MEDLINE=88030594; PubMed=3311873;
 RA Pollock H.G., Kimmel J.R., Hamilton J.W., Rouse J.B., Edner K.E.,
 RA Lance V., Rawlitch A.B.;
 RT "Isolation and structures of alligator gar (Lepisosteus spatula)
 RT insulin and pancreatic polypeptide."
 RT Gen. Comp. Endocrinol. 67:375-382(1987).
 RL Gen. Comp. Endocrinol. 67:375-382(1987).
 RN [1]
 RP FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
 CC THE BLOOD SUGAR LEVEL.
 CC -1- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
 CC IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
 CC -1- MISCELLANEOUS: X'S IN THE SEQUENCE WERE INCLUDED BY HOMOLOGY WITH
 CC AMERICAN GOOSEFISH SEQUENCES.

CC -1- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
 DR PIR: S06339; GCGXA.
 DR HSSP: P01274; IGCN.
 DR InterPro: IPR000532; Glucagon.
 DR Pfam: PF00123; hormone2; 2.
 DR SMART: SM00070; GLUCA; 2.
 DR PROSITE: PS00260; GLUCAGON; 2.
 KW Glucagon family; Hormone.
 FT NON_TER 1 1
 FT PEPTIDE 1 29 GLUCAGON.
 FT PEPTIDE 45 78 GLUCAGON-LIKE PEPTIDE.
 FT PEPTIDE 78 78
 SO SEQUENCE 78 AA; 8990 MW; 30106496271594E0 CRC64;

Query Match 76.4%; Score 110; DB 1; Length 78;
 Best Local Similarity 73.1%; Pred. No. 2.5e-09;
 Matches 19; Conservative 5; Mismatches 2; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSYLEGQAKKEFIAML 26
 ||:|||||:|||||:|||||:|
 DB 45 HADGTYSVSYLQDQAKKEFIAML 70

RESULT 15

GLUC_PIAME STANDARD; PRT; 71 AA.

AC P81860;
 DT 30-MAY-2000 (Rel. 39, Created)
 DT 30-MAY-2000 (Rel. 39, Last sequence update)
 DT 30-MAY-2000 (Rel. 39, Last annotation update)
 DE Glucagon precursor (Fragment).
 OS Piarractus mesopotamicus (Pacu).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Actinopterygii; Neopterygii; Teleostei; Euteleostei; Ostariophysi;
 OC Characiformes; Characidae; Serrasalminae; Piarractus.
 OC NCBI_Taxid=42528;
 RN [1]
 RP SEQUENCE.
 RC TISSUE=Pancreas;
 RX MEDLINE=99259387; PubMed=10327603;
 RA de Lima J.A., Oliveira B., Conlon J.M.;
 RT "Purification and characterization of insulin and peptides derived
 RT from piarractus and prosomatostatin from the fruit-eating fish, the
 RT pacu Piarractus mesopotamicus."
 RT Pacu. Biochem. Physiol. 122B:127-135(1999).
 RL Comp. Biochem. Physiol. 122B:127-135(1999).
 CC -1- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
 CC THE BLOOD SUGAR LEVEL.
 CC -1- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
 CC IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
 CC -1- MISCELLANEOUS: X'S IN THE SEQUENCE WERE INCLUDED BY HOMOLOGY WITH
 CC OTHER FISH SEQUENCES.
 CC -1- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
 DR HSSP: P01274; IGCN.
 DR InterPro: IPR000532; Glucagon.
 DR Pfam: PF00123; hormone2; 2.
 DR PRINTS: PR00275; GLUCAGON.
 DR SMART: SM00070; GLUCA; 2.
 DR PROSITE: PS00260; GLUCAGON; 2.
 KW Glucagon family; Hormone.
 FT NON_TER 1 1
 FT PEPTIDE 1 29 GLUCAGON.
 FT PEPTIDE 38 71 GLUCAGON-LIKE PEPTIDE.
 FT NON_TER 71 71
 SO SEQUENCE 71 AA; 8146 MW; F66A3CA2DD9806C5 CRC64;

Query Match 75.7%; Score 109; DB 1; Length 71;
 Best Local Similarity 73.1%; Pred. No. 3.2e-09;
 Matches 19; Conservative 5; Mismatches 2; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSYLEGQAKKEFIAML 26
 ||:|||||:|||||:|||||:|
 DB 38 HADGTYSVSYLQDQAKKEFIAML 63

Wed Jul 31 07:38:14 2002

Search completed: July 30, 2002, 08:49:23
Job time: 184 sec

us-09-508-083-1.rsp

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GenCore version 4.5
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OM protein - protein search, using sw model

Run on: July 30, 2002, 08:44:34 ; Search time 14.91 Seconds

(without alignments)
180.449 Million cell updates/sec

Title: US-09-508-083-1

Perfect score: 144

Sequence: 1 HAEGFTSDVSVLEGOAKEFIAMLVK 28

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 283138 seqs, 96089334 residues

Total number of hits satisfying chosen parameters: 283138

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Listing first 45 summaries

Database :

1: p1r1:*
2: p1r2:*
3: p1r3:*
4: p1r4:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	144	100.0	158	1	GCPG glucagon precursor
2	144	100.0	180	1	GCHU glucagon precursor
3	144	100.0	180	1	GCGP glucagon precursor
4	144	100.0	180	1	GCRDU glucagon precursor
5	144	100.0	180	1	GCHY glucagon precursor
6	144	100.0	180	1	GCHY glucagon precursor
7	144	100.0	180	1	GCHY glucagon precursor
8	144	100.0	180	2	A57294 glucagon precursor
9	132	91.7	206	1	GCHH glucagon precursor
10	132	91.7	206	1	IS1301 glucagon precursor
11	118	81.9	30	2	B61125 glucagon-like pept
12	118	81.9	30	2	B61125 glucagon-like pept
13	118	81.9	101	1	GCRGB glucagon precursor
14	112	77.8	63	1	GCTDC glucagon precursor
15	112	77.8	122	1	GCAF2 glucagon 2 precurs
16	110	76.4	72	1	GCGXA glucagon precursor
17	109	75.7	66	2	IS1093 glucagon - chlnock
18	109	75.7	178	2	IS1058 glucagon I precurs
19	109	75.7	178	2	IS1057 glucagon II precur
20	104	72.2	30	2	S44473 glucagon-like pept
21	104	72.2	60	1	GCONC glucagon precursor
22	97	67.4	29	2	S07211 glucagon - marbled
23	97	67.4	87	1	GCFIS glucagon precursor
24	95	66.0	29	1	GCPFE glucagon - smaller
25	93	64.6	29	1	GCEBN glucagon - elephant
26	93	64.6	124	1	GCAF glucagon - North A
27	90	62.5	29	2	AG1740 glucagon - turkey
28	90	62.5	29	2	AG1740 glucagon - rabbit
29	62.5		29	2	AG1741 glucagon - rabbit

Not sequenced
same length

30	90	62.5	29	2	A91742 glucagon - Arabian
31	90	62.5	29	2	C39258 glucagon - common
32	90	62.5	31	2	S44472 glucagon G2 - Nort
33	90	62.5	69	1	GCDG69 glucagon-69 - dog
34	88	61.1	29	1	GCDK glucagon - duck
35	88	61.1	29	1	AG1583 glucagon - ostrich
36	88	61.1	29	1	GCTTS glucagon - slider
37	88	61.1	29	2	C60840 glucagon I - Europ
38	88	61.1	31	2	S44471 glucagon G1 - Nort
39	87	60.4	29	1	GCEB glucagon - Chinchi
40	86	59.7	29	1	GCFLE glucagon - Europea
41	86	59.7	29	2	AG1135 glucagon - biyeve
42	83	57.6	29	2	S39018 glucagon - bowfin
43	83	57.6	39	1	HMGH4C glucagon - Gila m
44	81	56.2	39	1	HMGH3Z extendin-4 - Gila m
45	79	54.9	36	1	GCFI glucagon-36 - Mexia

ALIGNMENTS

RESULT 1
GCPG glucagon precursor - pig (fragment)
N: Alternate names: glicentin; oxyntomodulin
M: Contains: glicentin-related peptide; glucagon; glucagon-37 (oxyntomodulin); glucago
C: Species: Sus scrofa domestica (domestic pig)
C: Date: 17-Dec-1982 #sequence_revision 31-Mar-1993 #text_change 20-Mar-1998
R: Thim, L.; Moody, A.J.
Regul. Pept. 2, 139-150, 1981
A: Title: The primary structure of porcine glicentin (proglucagon).
A: Reference number: A94233; MUID: 81248172
A: Accession: A01540
A: Molecule type: protein
A: Residues: 1-69 <THR1>
R: Thim, L.; Moody, A.J.
Regul. Pept. Suppl. 2, S33, 1983
A: Title: Primary structure of a possible porcine proglucagon fragment.
A: Reference number: A60312
A: Accession: A60312
A: Molecule type: protein
A: Residues: 1-30 <THR2>
A: Note: this peptide is co-secreted with glucagon from the pancreas
R: Bromer, W.W.; Sinn, L.G.; Behrens, O.K.
J. Am. Chem. Soc. 79, 2807-2810, 1957
A: Title: The amino acid sequence of glucagon. V. Location of amide groups, acid degra
A: Reference number: A91781
A: Accession: A91781
A: Molecule type: protein
A: Residues: 33-61 <BRD>
R: Orskov, C.; Bersani, M.; Johnsen, A.H.; Hojrup, P.; Holst, J.J.
J. Biol. Chem. 264, 12826-12829, 1989
A: Title: Complete sequences of glucagon-like peptide-1 from human and pig small intes
A: Reference number: A92732; MUID: 89327238
A: Accession: B32614
A: Molecule type: protein
A: Residues: 78-107 <ORS>
R: Buhl, T.; Thim, L.; Kofod, H.; Orskov, C.; Harling, H.; Holst, J.J.
J. Biol. Chem. 263, 8621-8624, 1988
A: Title: Naturally occurring products of proglucagon 111-160 in the porcine and human
A: Reference number: A28064; MUID: 88243712
A: Accession: A28064
A: Molecule type: protein
A: Residues: 111-158 <BUH>
C: Comment: X's represent missing amino acids, mostly basic, that are predicted to exi
C: Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; int
F: 1-69/Product: glucagon-69 #status experimental <G65>
F: 1-30/Region: glicentin-related peptide #status experimental
F: 33-69/Product: glucagon-37 #status predicted <G37>
F: 33-61/Product: glucagon #status experimental <GCN>
F: 78-107/Product: glucagon-like peptide 1 #status experimental <GL1>

F:126-158/Product: glucagon-like peptide 2 #status experimental <GL2>
F:107/Modified site: amidated carboxyl end (Arg) (amide in mature form from following gl

Query Match 100.0%; Score 144; DB 1; Length 158;
Best Local Similarity 100.0%; Pred. No. 1.1e-13

Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSSYLEGQAAKEFIAMLVK 28
|||||
Db 78 HAEGFTSDVSSYLEGQAAKEFIAMLVK 105

RESULT 2
GCHU
glucagon precursor [validated] - human
N:Contains: glidentin; glidentin-related polypeptide (GRPP); glucagon; glucagon-like pe

ke peptide 1 (tGRLP)
C:Species: Homo sapiens (man)
C:Date: 24-Apr-1984 #sequence, revision 31-Mar-1993 #text_change 08-Dec-2000

C:Accession: A24377; A44197; A30875; A32614; A01541; S23309
R:White, J.W.; Saunders, G.F.
Nucleic Acids Res. 14, 4719-4730, 1986

A:Title: Structure of the human glucagon gene.
A:Reference number: A24377; MUID:86259053

A:Accession: A24377
A:Molecule type: DNA
A:Residues: 1-180 <WHI>

A:Cross-references: GB:V01515; NID:931777; PIDN:CAA2429.1; PID:931778
R:Drucker, D.J.; Asa, S.
J. Biol. Chem. 263, 13475-13478, 1988

A:Title: Glucagon gene expression in vertebrate brain
A:Reference number: A30875; MUID:88330860

A:Accession: A30875
A:Molecule type: mRNA
A:Residues: 1-180 <DRU>

A:Cross-references: GB:V04040; NID:9183269; PIDN:AAAS2667.1; PID:9183270
R:Orskov, C.; Bergant, M.; Johnsen, A.H.; Hojrup, P.; Holst, J.J.
J. Biol. Chem. 264, 12826-12829, 1989

A:Title: Complete sequences of glucagon-like peptide-1 from human and pig small intestine
A:Reference number: A92732; MUID:89327238

A:Accession: A32614
A:Molecule type: protein
A:Residues: 98-127 <ORS>

R:Thomsen, J.; Kristiansen, K.; Brunfeldt, K.; Sundby, F.
FEBS Lett. 21, 315-319, 1972
A:Title: The amino acid sequence of human glucagon.
A:Reference number: A91373

A:Accession: A01541
A:Molecule type: protein
A:Residues: 53-81 <RHO>

R:Tsuigita, A.; Takamoto, K.; Kamo, M.; Iwade, H.
Eur. J. Biochem. 206, 691-696, 1992
A:Title: C-terminal sequencing of protein. A novel partial acid hydrolysis and analysis

A:Reference number: S23188; MUID:92298996
A:Accession: S23309
A:Molecule type: protein
A:Residues: 53-81 <TSU>

C:Comment: In pancreatic alpha-cells, proglucagon is processed to glucagon-like poly

stinal L cells, proglucagon is processed to truncated glucagon-like peptide 1, glucagon

dulin.
C:Genetics: A:Gene: GDB:GCG
A:Cross-references: GDB:119265; OMIM:138030
A:Map position: 2q36-q37

A:Introns: 31/2; 85/2; 131/2; 179/2
C:Superfamily: glucagon
C:Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; int

F:1-20/Domain: signal sequence #status predicted <SIG>
F:21-180/Product: proglucagon #status experimental <PRC>

F:21-89/Product: glidentin #status experimental <GLN>
F:21-50/Product: glidentin-related polypeptide #status predicted <GRPP>

F:53-89/Product: oxyntomodulin #status experimental <OXN>
F:53-81/Product: glucagon #status experimental <GCN>

F:92-178/Product: major proglucagon fragment #status experimental <MPGF>
F:92-127/Product: glucagon-like peptide 1 #status experimental <GL1>

F:98-127/Product: truncated glucagon-like peptide 1 #status experimental <TRL>
F:146-178/Product: glucagon-like peptide 2 #status predicted <GL2>

F:127/Modified site: amidated carboxyl end (Arg) (amide in mature form from following

OY 1 HAEGFTSDVSSYLEGQAAKEFIAMLVK 28
|||||
Db 98 HAEGFTSDVSSYLEGQAAKEFIAMLVK 125

RESULT 3
GCGP
glucagon precursor - guinea pig
N:Alternate names: oxyntomodulin

N:Contains: glidentin-related peptide; glucagon; glucagon-37 (oxyntomodulin); glucago
C:Species: Cavia porcellus (guinea pig)
C:Date: 30-Sep-1987 #sequence, revision 31-Dec-1992 #text_change 16-Jun-2000

C:Accession: A24856; A23849; A60323
R:Seino, S.; Welsh, M.; Bell, G.I.; Chan, S.J.; Steiner, D.F.
FEBS Lett. 203, 25-30, 1986

A:Title: Mutations in the guinea pig proglucagon gene are restricted to a specific
A:Reference number: A24856; MUID:86248118

A:Accession: A24856
A:Molecule type: mRNA
A:Residues: 1-180 <SEI>

A:Cross-references: DBJ:D00014; GB:N00014; NID:9220288; PIDN:BAA00010.1; PID:9220289
R:Huang, C.G.; Eng, J.; Pan, Y.C.E.; Holmes, J.D.; Yalow, R.S.
Diabetes 35, 508-512, 1986

A:Title: Guinea pig glucagon differs from other mammalian glucagons.
A:Reference number: A23849; MUID:86165412

A:Accession: A23849
A:Molecule type: protein
A:Residues: 53-81 <HUA>

R:Conlon, J.M.; Hansen, H.F.; Schwartz, T.W.
Regul. Pept. 11, 309-320, 1985
A:Title: Primary structure of glucagon and a partial sequence of oxyntomodulin (gluca

A:Reference number: A60323; MUID:86017849
A:Accession: A60323
A:Molecule type: protein
A:Residues: 53-81 <CON>

A:Note: glucagon-37 was not completely sequenced
C:Superfamily: glucagon
C:Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; pan

F:1-20/Domain: signal sequence #status predicted <SIG>
F:21-180/Product: proglucagon #status predicted <PRC>

F:21-50/Region: glidentin-related peptide #status predicted
F:53-89/Product: glucagon-37 (oxyntomodulin) #status experimental <G37>

F:53-81/Product: glucagon #status experimental <GCN>
F:98-127/Product: glucagon-like peptide 1 #status predicted <GL1>
F:146-178/Product: glucagon-like peptide 2 #status predicted <GL2>

F:127/Modified site: amidated carboxyl end (Arg) (amide in mature form from following

OY 1 HAEGFTSDVSSYLEGQAAKEFIAMLVK 28
|||||

Db 98 HAEGFTSDVSSYLEGQAKEFIAMLVK 125
|||||

RESULT 4

GCR7DU

glucagon precursor - dequ

N:Contains: glicentin-related peptide; glucagon; glucagon-like peptide 1; glucagon-like

C:Species: Octodon degus (degu)

C:Date: 31-Mar-1993 #sequence_revision 31-Mar-1993 #text_change 18-Jun-1999

C:Accession: C36118

R:Nishi, M.; Steiner, D.F.

Mol. Endocrinol. 4, 1192-1198, 1990

A:Title: Cloning of complementary DNAs encoding islet amyloid polypeptide, insulin, and

A:Reference number: A36118; MUID:91155952

A:Accession: C36118

A:Molecule type: mRNA

A:Cross-references: GB:M57688; MID:g202467; PID:AAA40588.1; PID:g202468

A:Residues: 1-180 <NIS>

C:Superfamily: glucagon

C:Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; pancre

F:1-20/Domain: signal sequence #status predicted <SIG>

F:21-180/Product: proglucagon #status predicted <PGC>

F:21-50/Region: glicentin-related peptide #status predicted

F:53-81/Product: glucagon #status predicted <GCN>

F:98-127/Product: glucagon-like peptide 1 #status predicted <GL1>

F:146-178/Product: glucagon-like peptide 2 #status predicted <GL2>

F:127/Modified site: amidated carboxyl end (Arg) (amide in mature form from following gl

Query Match 100.0%; Score 144; DB 1; Length 180;
Best Local Similarity 100.0%; Pred. No. 1.3e-13;

Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGFTSDVSSYLEGQAKEFIAMLVK 28
|||||

Db 98 HAEGFTSDVSSYLEGQAKEFIAMLVK 125
|||||

RESULT 5

GCR7

glucagon precursor - rat

N:Contains: glicentin-related peptide; glucagon; glucagon-like peptide 1; glucagon-like

C:Species: Rattus norvegicus (Norway rat)

C:Date: 30-Sep-1987 #sequence_revision 30-Sep-1987 #text_change 26-Feb-1999

C:Accession: A22655; A25190; A44198

R:Heinrich, G.; Gros, P.; Habener, J.F.

J. Biol. Chem. 259, 14082-14087, 1984

A:Title: Glucagon gene sequence: four of six exons encode separate functional domains of

A:Reference number: A22655; MUID:85054853

A:Accession: A22655

A:Molecule type: DNA

A:Residues: 1-180 <HE1>

A:Cross-references: EMBL:K02809

A:Note: the authors translated the codon TTG for residue 10 as Glu and ACC for residue 5

R:Moisov, S.; Heinrich, G.; Wilson, I.B.; Ravazzola, M.; Orci, L.; Habener, J.F.

J. Biol. Chem. 261, 11880-11889, 1986

A:Title: Preproglucagon gene expression in pancreas and intestine diversifies at the lev

A:Reference number: A25190; MUID:86304324

A:Accession: A25190

A:Status: not compared with conceptual translation

A:Molecule type: mRNA

A:Residues: 1-180 <MO1>

R:Heinrich, G.; Gros, P.; Lund, P.K.; Bentley, R.C.; Habener, J.F.

Endocrinology 115, 2176-2181, 1984

A:Title: Pre-proglucagon messenger ribonucleic acid: nucleotide and encoded amino acid s

A:Reference number: A44198; MUID:85051023

A:Accession: A44198

A:Status: preliminary

A:Molecule type: mRNA

A:Residues: 1-180 <HE2>

A:Cross-references: GB:K02809; GB:K02810; GB:K02811; GB:K02812

C:Genetics:

A:Introns: 31/2; 85/2; 131/2; 179/2

C:Superfamily: glucagon

C:Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; pan

F:1-20/Domain: signal sequence #status predicted <SIG>

F:21-180/Product: proglucagon #status predicted <PGC>

F:21-50/Region: glicentin-related peptide #status predicted

F:53-81/Product: glucagon #status predicted <GCN>

F:98-127/Product: glucagon-like peptide 1 #status predicted <GL1>

F:146-180/Product: glucagon-like peptide 2 #status predicted <GL2>

F:127/Modified site: amidated carboxyl end (Arg) (amide in mature form from following

Query Match 100.0%; Score 144; DB 1; Length 180;
Best Local Similarity 100.0%; Pred. No. 1.3e-13;

Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGFTSDVSSYLEGQAKEFIAMLVK 28
|||||

Db 98 HAEGFTSDVSSYLEGQAKEFIAMLVK 125
|||||

RESULT 6

GCHY

glucagon precursor - golden hamster

N:Contains: glicentin-related peptide; glucagon; glucagon-like peptide 1; glucagon-like

C:Species: Mesocricetus auratus (golden hamster)

C:Date: 13-Jun-1983 #sequence_revision 13-Jun-1983 #text_change 20-Mar-1998

C:Accession: A01539

R:Bell, G.I.; Santerre, R.F.; Mullenbach, G.T.

Nature 302, 716-718, 1983

A:Title: Hamster preproglucagon contains the sequence of glucagon and two related pep

A:Reference number: A01539; MUID:83167563

A:Accession: A01539

A:Molecule type: mRNA

A:Cross-references: EMBL:J00059

C:Superfamily: glucagon

C:Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; pan

F:1-20/Domain: signal sequence #status predicted <SIG>

F:21-180/Product: proglucagon #status predicted <PGC>

F:21-50/Region: glicentin-related peptide #status predicted

F:53-81/Product: glucagon #status predicted <GCN>

F:98-127/Product: glucagon-like peptide 1 #status predicted <GL1>

F:146-180/Product: glucagon-like peptide 2 #status predicted <GL2>

F:127/Modified site: amidated carboxyl end (Arg) (amide in mature form from following

Query Match 100.0%; Score 144; DB 1; Length 180;
Best Local Similarity 100.0%; Pred. No. 1.3e-13;

Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGFTSDVSSYLEGQAKEFIAMLVK 28
|||||

Db 98 HAEGFTSDVSSYLEGQAKEFIAMLVK 125
|||||

RESULT 7

GCB0

glucagon precursor - bovine

N:Contains: glicentin-related peptide; glucagon; glucagon-like peptide 1; glucagon-like

C:Species: Bos primigenius taurus (cattle)

C:Date: 14-Nov-1983 #sequence_revision 14-Nov-1983 #text_change 20-Mar-1998

C:Accession: A93970; A92081; A01538

R:Lopez, L.C.; Frazier, M.L.; Su, C.J.; Kumar, A.; Saunders, G.F.

Proc. Natl. Acad. Sci. U.S.A. 80, 5485-5489, 1983

A:Title: Mammalian pancreatic preproglucagon contains three glucagon-related peptides

A:Reference number: A93970; MUID:83299996

A:Accession: A93970

A:Molecule type: mRNA

A:Residues: 1-180 <LOP>

A:Cross-references: EMBL:K00107

R:Bromer, W.W.; Boucher, M.E.; Koffenberger Jr., J.E.

J. Biol. Chem. 246, 2822-2827, 1971

A:Title: Amino acid sequence of bovine glucagon.
A:Reference number: A92081; MUID:71166445
A:Accession: A92081
A:Molecule type: protein
A:Residues: 53-81 <BRO>
C:Superfamily: glucagon
C:Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; pancreas
F:1-20/Domain: signal sequence #status predicted <SIG>
F:21-180/Product: proglucagon #status predicted <PGC>
F:21-50/Region: glucocorticoid-related peptide #status predicted
F:53-81/Product: glucagon #status experimental <GCN>
F:96-117/Product: glucagon-like peptide 1 #status experimental <GL1>
F:146-178/Product: glucagon-like peptide 2 #status predicted <GL2>
F:127/Modified site: amidated carboxyl end (Arg) (amide in mature form from following 91

Query Match 100.0%; Score 144; DB 1; Length 180;
Best Local Similarity 100.0%; Pred. No. 1.3e-13;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAAKEFIAMLVK 28
|||||
Db 98 HAEGFTSDVSSYLEGQAAKEFIAMLVK 125

RESULT 8
A57294
glucagon precursor - mouse
C:Species: Mus musculus (house mouse)
C:Date: 01-Dec-1995 #sequence_revision 01-Dec-1995 #text_change 16-Jul-1999
C:Accession: A57294; S48903
R:Rothenberg, M.E.; Ellertson, C.D.; Klein, K.; Zhou, Y.; Lindberg, I.; McDonald, J.K.;
J. Biol. Chem. 270, 10136-10146, 1995
A:Title: Processing of mouse proglucagon by recombinant prohormone convertase 1 and immu
A:Reference number: A57294; MUID:95247722
A:Accession: A57294
A>Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-180 <NOT>
A:Cross-references: EMBL:246845; NID:9599880; PIDN:CAA6602.1; PID:9599881
C:Superfamily: glucagon
C:Keywords: carbohydrate metabolism; duplication; hormone; pancreas

Query Match 100.0%; Score 144; DB 2; Length 180;
Best Local Similarity 100.0%; Pred. No. 1.3e-13;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAAKEFIAMLVK 28
|||||
Db 98 HAEGFTSDVSSYLEGQAAKEFIAMLVK 125

RESULT 9
GCCH
glucagon precursor - chicken
N:Contains: glucagon; glucagon-like peptide 1
C:Species: Gallus gallus (chicken)
C:Date: 31-Dec-1991 #sequence_revision 31-Mar-1993 #text_change 18-Jun-1999
C:Accession: S09992; A92189; A60836; A01542
R:Hasegawa, S.; Terazono, K.; Nata, K.; Takada, T.; Yamamoto, H.; Okamoto, H.
FEBS Lett. 264, 117-120, 1990
A:Title: Nucleotide sequence determination of chicken glucagon precursor cDNA. Chicken F
A:Reference number: S09992; MUID:90249492
A:Accession: S09992
A:Molecule type: mRNA
A:Residues: 1-151 <HNS>
A:Cross-references: EMBL:Y07539; NID:963749; PIDN:CAA68827.1; PID:963750
R:Pollock, H.G.; Kimmel, J.R.
J. Biol. Chem. 250, 9377-9380, 1975
A:Title: Chicken glucagon. Isolation and amino acid sequence studies.
A:Reference number: A92189; MUID:76069271
A:Accession: A92189

A:Molecule type: protein
A:Residues: 55-83 <POL>
R:Huang, J.; Eng, J.; Yalow, R.S.
Horm. Metab. Res. 19, 542-544, 1987
A:Title: Chicken glucagon: sequence and potency in receptor assay.
A:Reference number: A60836; MUID:88113418
A:Accession: A60836
A:Molecule type: protein
A:Residues: 55-83 <HUA>
C:Superfamily: glucagon
F:1-22/Domain: signal sequence #status predicted <SIG>
F:23-151/Product: proglucagon #status predicted <PGC>
F:55-83/Product: glucagon #status experimental <GCN>
F:118-147/Product: glucagon-like peptide 1 #status predicted <GL1>
F:147/Modified site: amidated carboxyl end (Arg) (amide in mature form from following

Query Match 91.7%; Score 132; DB 1; Length 151;
Best Local Similarity 88.9%; Pred. No. 6.1e-12;
Matches 24; Conservative 3; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAAKEFIAMLV 27
|||||
Db 118 HAEGFTSDVSSYLEGQAAKEFIAMLV 144

RESULT 10
151301
proglucagon - chicken
C:Species: Gallus gallus (chicken)
C:Date: 13-Sep-1996 #sequence_revision 13-Sep-1996 #text_change 16-Jul-1999
C:Accession: 151301
R:Irwin, D.M.; Wong, J.
Mol. Endocrinol. 9, 267-277, 1995
A:Title: Trout and chicken proglucagon: alternative splicing generates mRNA transcrip
A:Reference number: A55895; MUID:95255739
A:Accession: 151301
A>Status: preliminary; translated from GB/EMBL/DBJ
A:Molecule type: mRNA
A:Residues: 1-206 <IRW>
A:Cross-references: GB:S78477; NID:9999386; PIDN:AB34506.1; PID:9999387
C:Superfamily: glucagon
C:Keywords: duplication

Query Match 91.7%; Score 132; DB 2; Length 206;
Best Local Similarity 88.9%; Pred. No. 8.5e-12;
Matches 24; Conservative 3; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAAKEFIAMLV 27
|||||
Db 118 HAEGFTSDVSSYLEGQAAKEFIAMLV 144

RESULT 11
B61125
glucagon-like peptide - American eel
C:Species: Anguilla rostrata (American eel)
C:Date: 10-Mar-1994 #sequence_revision 10-Mar-1994 #text_change 21-Nov-1997
C:Accession: B61125
R:Conlon, J.M.; Andrews, P.C.; Thim, L.; Moon, T.W.
Gen. Comp. Endocrinol. 82, 23-32, 1991
A:Title: The primary structure of glucagon-like peptide but not insulin has been cons
A:Reference number: A61125; MUID:91340068
A:Accession: B61125
A:Molecule type: protein
A:Residues: 1-30 <CON>
C:Superfamily: glucagon
C:Keywords: amidated carboxyl end; duplication
F:1-30/Product: glucagon-like peptide #status experimental <GLP>
F:30/Modified site: amidated carboxyl end (Arg) #status predicted

